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UNITED STATES-SOVIET SATELLITE ACCORD: SARSAT/COSPAS SEARCH-AND-RESCUE PROGRAM

HEARING

BEFORE THE

SUBCOMMITTEE ON NATURAL RESOURCES,
AGRICULTURE RESEARCH AND ENVIRONMENT

OF THE

COMMITTEE ON
SCIENCE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

NINETY-EIGHTH CONGRESS

SECOND SESSION

SEPTEMBER 18, 1984

[No. 146]

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UNITED STATES-SOVIET SATELLITE ACCORD: SARSAT/COSPAS SEARCH-AND-RESCUE PROGRAM

TUESDAY, SEPTEMBER 18, 1984

House of Representatives,
Committee on Science and Technology,
Subcommittee on Natural Resources,
Agriculture Research and Environment,
Washington, DC.

The subcommittee met, pursuant to call, at 9:55 a.m., in room 2325, Rayburn House Office Building, Hon. James H. Scheuer (chairman of the subcommittee) presiding.

Mr. Scheuer. The subcommittee will come to order.

Today's hearing has been called to bring us up to date on SARSAT/COSPAS, a very effective search-and-rescue program based on a joint U.S.-U.S.S.R. satellite agreement.

The success of the program over the past 2 years speaks for itself. During that time, 278 lives have been saved worldwide, including 134 in the United States alone.

To our knowledge, no Soviet lives were saved through the fine cooperation of the Soviet Union.

In an era of heightened East-West tensions, SARSAT stands alone as a model of international technical cooperation. Not only is there cooperation between the United States and the Soviets in the operation of the satellites themselves, but France and Canada provide the instruments which track the emergency beacon signals from downed aircraft or from ships in distress.

The signals themselves are transmitted to ground stations in the United Kingdom, Norway, Sweden, Finland, and Bulgaria. And most importantly, the United States and the Soviet Union have provided the polar orbiting satellite platforms necessary to maintain the system.

In very point of fact, on October 1, a U.S. negotiating team is scheduled to travel to Leningrad to complete an agreement committing each nation to the provision of two satellites for the remainder of the 1980's.

The SARSAT Program seemed to be on track for even greater success until July 26, when David Stockman and the Office of Management and Budget entered the picture.

In a letter to Secretary of Commerce Malcolm Baldrige, Mr. Stockman instructed Secretary Baldrige to conduct the negotiations in Leningrad on the basis of the United States providing one, not two, but one polar-orbiting satellite.

Stockman's argument was strictly budgetary and consistent with the President's attempts, over the past 3 years, to reduce the complement of civil polar-orbiting weather satellites from two to one.

What Mr. Stockman failed to point out in his letter to Baldrige was that Congress has rejected the administration's proposal 3 years running, and that is U.S. policy, as opposed to OMB policy, and that the Congress clearly and unequivocally called for continuation of the two polar-orbiting system.

In fact, less than 3 weeks ago, President Reagan committed the United States to a two-polar system for at least another year when he signed the fiscal year 1985 Commerce appropriations bill.

We up here, on a bipartisan basis, fail to see what the administration could accomplish by ignoring the law and scaling back on our commitment to the SARSAT system at the Leningrad negotiations.

In my view, such a negotiating posture would only serve to jeopardize our reliability and credibility with allies involved in the program, and would enable the Soviets to crow about the United States' interest in death-dealing weapons in space at the expense of lifesaving, humanitarian programs in space.

In the past few weeks, we in the Congress have tried again and again to send a clear signal to the administration that any scaling back in the U.S. commitment to SARSAT would be a programmatic and public relations disaster of the first order.

We have mandated two satellites in an appropriations bill. We have prepared legislation in both Houses of Congress urging continuation of the SARSAT Program.

And we have peppered administrative agencies with letters expressing our deep concern. We have sent these clear signals in the spirit of collegiality and mutual respect and with the hope that somebody in the Executive Office Building was listening.

As of the close of business last night, for at least an hour after the close of business, there was no indication anyone had heard us.

I can only hope that the administration witnesses with us today will tell us that sensible people have prevailed over the bean counters at the OMB, and that the United States will continue to honor its commitment to the SARSAT Program.

We have with us two fine and hard-working members of this committee, Congressman Tom Lewis of Florida, and Congressman Bob Torricelli from New Jersey.

We will ask them for a statement, and then we will turn to our very distinguished Congressman Danny Akaka of Hawaii.

Mr. LEWIS. Thank you, Mr. Chairman.

I want to join the chairman in welcoming our witnesses here today. As I see it, this is the fourth time in 3 years the Science Committee has discussed at length the one- versus two-polar orbiter issue.

I have been, and continue to be, a supporter of the second polar orbiter. It provides for better global weather coverage than a one-polar system, and also provides redundancy for the civil weather satellite system.

Events which took place over the summer certainly provide evidence of the need for redundancy. First, the NOAA-8 polar-orbiting weather satellite failed prematurely in June. This was the first SARSAT-equipped American satellite.

More recently, the failure of the GOES-EAST geostationary weather satellite left us without early hurricane warning capability during the hurricane season. Both of these events reinforced in my mind the need for a two-polar system.

Today, we are looking at the search-and-rescue satellite program. This program has proved to be a tremendous success, having saved the lives of 247 people who were in distress as result of downed planes and ships.

The agreement to be signed in Leningrad was negotiated earlier this year. It is my hope that the United States will sign this agreement and live up to its commitment in this worthwhile program.

As a pilot who flies all over Florida and relies specifically on my locator transmitter, in case I might happen to go down, I certainly feel and have empathy with anyone who is out in a boat or flying anywhere else in the United States or in the world, and feels a need for the second polar orbiter and the need to continue the SARSAT System, because it may be my life or my friends' lives as well as many, many other people—I do not know whose lives may be saved.

Mr. SCHEUER. Congressman Torricelli from New Jersey.

Mr. TORRICELLI. I want to thank you for holding this hearing, which promises to be very informative. There is an old saying about how one can be penny-wise and pound-foolish.

Today, I hope we hear answers to how the United States may be on the verge of saving $50 million and diluting the effect of billions of dollars worth of public relations money the U.S. Government spends, and at the same time, appear to do what would be almost impossible, making the Soviets appear humanitarians, something they don't deserve, something that isn't right.

But after spending all the billions we do to appear in a different image than the Soviets, perhaps ironically, almost making that impossible.

Mr. SCHEUER. Will Congressman Akaka come to the witness table? We are very happy to have you here this morning. We welcome you, and your entire statement will be printed in full in the record.

Please take as much time as you need. We are delighted to have you with us.

STATEMENT OF HON. DANIEL K. AKAKA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF HAWAII

Mr. AKAKA. Thank you very much, Mr. Chairman, and members of the Natural Resources, Agriculture Research and Environment Subcommittee. I am happy to be able to testify.

To date, there have been over 278 lives saved around the world as a result of the success of the SARSAT/COSPAS Program.

Ironically enough, not one of those was a Soviet life, in spite of the fact that the Soviet satellites are currently the only satellites in service, with the recent loss of the U.S. polar-orbiting spacecraft NOAA-8.

There can be no doubt in anyone's mind that the SARSAT/COSPAS Search-and-Rescue Satellite Program is a remarkable success, with Canada, France, the United States, the Soviet Union, the United Kingdom, Norway, Sweden, Finland and Bulgaria all participating in the program to save lives around the world.

You probably also know that this is one of the few programs in existence where we collaborate with the Soviet Union in technology and space.

Today, you will hear from a series of expert witnesses on the intrinsic value of the program. You will also hear from those whose lives may have been lost, had this system not been around.

I do not believe that there is a person in this room today who could support the notion that the United States should withdraw from the program. It will be clearly demonstrated today that this program is a good one, from a variety of points of view: Technical, economic, political and humanitarian. It will be clearly demonstrated today that this program should proceed as rapidly as possible from its experimental phase to its operational phase, with the signing of the Leningrad Agreement on October 15, 1984.

Mr. Chairman, I firmly believe that this administration should be held firmly accountable for its willingness to sacrifice this program on the altar of inconsequential "budgetary savings."

When the Director of the Office of Management and Budget, David Stockman, wrote his now-famous "Dear Mac" letter to Secretary Baldrige proposing to remove the second polar-orbiting satellite from the system to save "$300 million between 1985 and 1989," he should have been told to publicly admit his error in judgment.

In spite of OMB's opinions on the value of a two-polar-orbiting system, it is the official policy of the U.S. Government that we have a system of two-polar-orbiting satellites. OMB has refused to accept this fact for the past 3 years.

For the past 3 years, OMB has cut the second satellite out of the budget, and for the past 3 years Congress has, in a spirit of true bipartisanship, put it back in.

Moreover, President Reagan has actually signed all three of the spending bills which fund the second polar-orbiting satellite. It is, therefore, perfectly clear that everyone understands the necessity and the inevitability of having two polar-orbiting satellites; everyone, that is, but OMB.

For OMB to write the "Dear Mac" letter calling the negotiations into question a few weeks before the signing of the Leningrad Agreement, knowing full well that this was the best way to kill the program, is nothing more than a concrete demonstration of the intolerable interference and meddling routinely practiced by the agency.

This administration has shown neither the willingness nor the ability to control or discipline OMB when the agency interferes with programs and agencies well beyond its budgetary understanding.

I submit that OMB has no business interfering in delicate foreign policy negotiations, especially in a program whose ground rules have already been negotiated and accepted by all parties concerned, with the stamp of administration approval and congressional approval on the concept of a two-polar-orbiting system.

While it may be perfectly true that in the long run, the polar-orbiting configuration is not the best suited to the SARSAT/COSPAS system, that is all we have now, and that is what we should use until another satellite system or dedicated space bus is developed.

What is perfectly clear is that we are committed to a four-satellite constellation, where two of the satellites are supplied by the United States. I urge my colleagues to insure that we meet that commitment, as we sign the Leningrad agreements in a few weeks.

Mr. Chairman, we join you in calling our colleagues to support this, so today, my colleague Mr. Lujan and I and 25 other Members are introducing a concurrent resolution which declares a U.S. commitment to sign the SARSAT/COSPAS agreements based on a constellation of four satellites, two of which are polar-orbiting spacecraft.

I ardently hope that you, Mr. Chairman, and the members of this committee will act swiftly on this issue before the program collapses due to meddling by OMB. Surely, our allies must rest assured that we are, in fact, a Nation which keeps its promises.

Thank you very much.

[The prepared statement of Mr. Akaka and attachment follows:]

THE HONORABLE DANIEL K. AKAKA
TESTIMONY BEFORE
THE SUBCOMMITTEE ON
NATURAL RESOURCES, AGRICULTURE RESEARCH AND ENVIRONMENT
SEPTEMBER 18, 1984

I want to take this opportunity to thank you Mr. Chairman and Members of the Subcommittee for giving me this opportunity to discuss an issue of profound concern to all of us.

As you no doubt know, the SARSAT/COSPAS search and rescue system was first initiated in 1977, when NASA signed an agreement on behalf of the United States to conduct an experimental satellite-aided search and rescue program. The SARSAT program uses equipment provided -at no cost- by Canada and France on the U.S. polar-orbiting weather satellites. It was also in 1977 that the Soviet Union joined the search and rescue program, and agreed to provide two interoperable search and rescue satellites under a program called COSPAS. During the course of the experimental phase of the program, the Soviets have met their commitment with flying colors; not only did they fly the two satellites they agreed to fly, but they also activated a third satellite.

To date, there have been over 278 lives saved around the world as a result of the success of the SARSAT/COSPAS program. Ironically enough, not one of those was a soviet life, in spite of the fact that the soviet satellites are currently the only satellites in service, with the recent loss of the U.S. polar-orbiting spacecraft NOAA-8.

There can be no doubt in anyone's mind that the SARSAT/COSPAS search and rescue satellite program is a remarkable sucess, with Canada, France, the United States, the Soviet Union, the United Kingdom, Norway, Sweden, Finland, and Bulgaria all participating in the program to save lives around the world. You probably also know that this is one of the few programs in existence where we collaborate with the Soviet Union in technology and space.

Today you will hear from a series of expert witnesses on the intrinsic value of the program. You will also hear from those whose lives may have been lost, had this system not been around.

I do not believe that there is a person in this room today who could support the notion that the United States should withdraw from the program. It will be clearly demonstrated today that this program is a good one--from a variety of points of view: technical, economic, political, and humanitarian. It will be clearly demonstrated today that this program should proceed as rapidly as possible from its experimental phase to its operational phase, with the signing of the Leningrad agreement on October 5th.

Mr. Chairman, I firmly believe that this Administration should be held firmly accountable for its willinginess to sacrifice this program on the altar of inconsequential "budgetary savings." When the Director of the Office of Management and the Budget, David Stockman, wrote his now-famous "Dear Mac" letter to Secretary Baldridge proposing to remove the second polar-orbiting satellite from the system to save "$300 million betweeen 1985 and 1989," he should have been told to publicly admit his error in judgement.

In spite of OMB's opinions on the value of a two-polar orbiting system, it is the offical policy of the United States government that we have a system of two-polar orbiting satellites. OMB has refused to accept this fact for the past three years. For the past three years, OMB has cut the second satellite out of the budget and for the past three years Congress, has, in a spirit of true bi-partisanship, put it back in. Moreover, President Reagan has actually signed all three of the spending bills which fund the second polar-orbiting satellite. It is, therefore, perfectly clear that everyone understands the necessity and the inevitablility of having two-polar-orbiting satellites--everyone, that is, but OMB.

For OMB to write the "Dear Mac" letter calling the negotiations into question a few weeks before the signing of the Leningrad agreement, knowing full well that this was the best way to kill the program, is nothing more than a concrete demonstration of the intolerable interference and meddling routinely practiced by the agency.

This Administration has shown neither the willingness nor the ability to control or discipline OMB when the agency interferes with programs and agencies well its budgetary understanding. I submit that OMB has no business interfering in delicate foreign policy negotiations, especially in a program whose ground rules have already been negotiated and accepted by all parties concerned, with the stamp of administration

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approval and Congressional approval on the concept of a two-polar orbiting system.

While it may be perfectly true that in the long run, the polar-orbiting configuration is not the best-suited to the SARSAT/COSPAS system, that is all we have now and that is what we should use until another satellite system or dedicated space bus is developed. What is perfectly clear is that we are committed to a a four-satellite constellation, where two of the satellites are supplied by the United States. I urge my colleagues to insure that we meet that commitment as we sign the Leningrad agreements in a few weeks.

Today my colleague Mr. Lujan and I and 25 other Members are introducing a concurrent resolution which declares a U.S. commitment to sign the SARSAT/COSPAS agreements based on a constellation of four satellites, two of which are polar-orbiting spacecraft. I ardently hope that you, Mr. Chairman, and the members of this committee will act swiftly on this issue, before the program collapses due to meddling by OMB. Surely our allies must rest assured that we are, in fact, a nation which keeps its promises.

Thank you very much.

98th Congress
2nd Session

H.CON.RES ______

Declaring a U.S. commitment to sign the SARSAT/COSPAS international agreement with an international search and rescue constellation consisting of four satellites, two of which are U.S. polar-orbiting spacecraft.

IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 18, 1984

Mr. Lujan (for himself), Mr. Akaka, Mrs. Boggs, Mr. Volkmer, Mr. Chandler, Mr. Scheuer, Mr. Traxler, Mr. Jones of North Carolina Mr. Bevill, Mr. Fowler, Mr. Bateman, Mr. Brown, Mr. Lowrey, Mr. Matsui, Mr. Barnes, Mr. Heftel, Mr. Stokes, Mr. Evans, Mr. Young of Alaska, Mr. McGrath, Mr. Boehlert, Mr. Skeen, Mr. Young of Missouri, Mr. Udall, Mr. Levine , Mr. Studds, Mr. Gregg

JOINT RESOLUTION

Declaring a U.S. commitment to sign the SARSAT/COSPAS international agreement with an international search and rescue constellation of four satellites, two of which are U.S. polar-orbiting spacecraft.

Whereas the demonstration phase of the international search and rescue satellite program (SARSAT/COSPAS) has been an unqualified technical success since the initial agreement was signed in November, 1979;

Whereas the SARSAT/COSPAS program is a multiagency, multinational program which has existed for more than 5 years;

Whereas the demonstration phase of the program, with broad international participation, has already saved 278 lives worldwide and has resulted in an increase in benefits and a reduction in cost of international rescue operations;

Whereas the SARSAT/COSPAS program providing for international collaboration in search and rescue is the only one of its kind and is a result of agreements signed by the U.S., the Soviet Union, Canada, France, the United Kingdom, and Norway;

Whereas in May 1984 international participants in the SARSAT/COSPAS satellite-based search-and-rescue program agreed on the terms to proceed from the successful demonstration program to an operational system;

Whereas the final draft of the SARSAT/COSPAS memorandum of understanding was completed in April 1984, with all nations in agreement on the need for a four-satellite configuration for the system;

Whereas in October 1984 the United States, France, Canada, the Soviet Union, the United Kingdom, and Norway are scheduled to sign the negotiated COSPAS/SARSAT agreement;

Whereas the COSPAS/SARSAT agreement system calls for providing immediate continuity of the system by continuing with two U.S. spacecraft and two Soviet spacecraft for the balance of this decade; and

Whereas the July 26, 1984 letter from David Stockman to Malcolm Baldrige recommending the removal of one U.S. polar-orbiting satellite from the system runs contrary to the terms of the international SARSAT/COSPAS agreement and consequently endangers the entire program: Now, therefore, be it

Resolved by the House of Representatives (the Senate Concurring) that the United States is committed to full participation in the SARSAT/COSPAS program and should fly two search and rescue systems on NOAA polar-orbiting spacecraft at least until suitable alternatives can be developed.

Sec.2 The President should instruct the U.S. Delegation to sign the 1984 Leningrad SARSAT/COSPAS agreement on the basis of two U.S. polar-orbiting spacecraft as negotiated.

SEC 3. The President should direct the National Aeronautics and Space Administration and the National Oceanic and Atmospheric Administration to explore alternative ways to provide two permanent search and rescue systems in polar orbit, including the development of a dedicated satellite to meet America's commitment on a long-term basis to international search and rescue.

SEC 4. The President should direct the National Aeronautics and Space Administration and the National Oceanic and Atmospheric Administration to obtain the widest possible international participation in the development and operation of the SARSAT/COSPAS program.

Mr. SCHEUER. Thank you, Congressman Akaka, for your excellent statement, and also for your continuous leadership on this and related matters in your capacity as cochairman of the Congressional Space Caucus.

We are very grateful for all the leadership you have given us on this subject, and for the many times in which you have cooperated with us, and which you have appeared before this subcommittee, both in Washington and in Hawaii, on matters of deep concern to our committee.

At this time, if you have the time, we would be delighted to have you come up with us here and listen to the witnesses.

Mr. AKAKA. I thank you for the invitation, but I have another markup to attend.

Thank you very much, Mr. Chairman.

Mr. SCHEUER. Before calling the first witnesses, I want to put in the record, without objection, the statement of Congressman Jack Brooks, chairman of the Government Operations Committee of the House of Representatives.

I want to thank him for his outstanding leadership all along the line on this particular matter, and I just want to read the last couple of sentences of his very excellent testimony.

I am quoting from Congressman Brook's testimony:

> The United States has already been made to look bad by the indecision of the administration. If the United States does not sign the agreement it has already negotiated with the Russians, we will appear to the whole world as heartless isolationists. We simply can't afford to let this happen. The United States certainly should sign the search-and-rescue agreement in Leningrad on October 5.

[The prepared statement of Mr. Brooks follows:]

Statement of Congressman Jack Brooks
Subcommittee on Natural Resources, Agriculture Research,
and Environment
Committee on Science and Technology
Tuesday, September 18, 1984

MR. CHAIRMAN, TODAY'S HEARING IS AN URGENT EFFORT TO SALVAGE THE ONLY FORMAL COOPERATIVE OUTER-SPACE PROGRAM THE U.S. CURRENTLY HAS WITH THE SOVIET UNION. TODAY'S HEARING IS ALSO A SAD COMMENTARY ON HOW THIS ADMINISTRATION CONDUCTS THE AFFAIRS OF STATE.

ONE WEEK FROM TODAY, A U.S. DELEGATION IS SCHEDULED TO LEAVE TO ATTEND A SERIES OF MEETINGS WITH FRANCE, CANADA, AND THE SOVIET UNION CONCERNING THE CONTINUATION OF THE SATELLITE-AIDED SEARCH AND RESCUE PROGRAM KNOWN AS COSPAS-SARSAT. THE CANADIANS AND FRENCH HAVE ALREADY AGREED TO CONTINUE PROVIDING THE SEARCH AND RESCUE SENSORS AND THE U.S. AND RUSSIANS HAVE AGREED TO PROVIDE TWO SATELLITES EACH UPON WHICH TO FLY THESE SENSORS. THE CULMINATION OF THESE MEETINGS IS SUPPOSED TO BE THE FORMAL SIGNING OF THE SEARCH AND RESCUE AGREEMENT BETWEEN THE U.S. AND RUSSIA ON OCTOBER 5 IN LENINGRAD.

AFTER THIS AGREEMENT HAD BEEN NEGOTIATED AND AFTER IT HAD BEEN APPROVED FOR SIGNATURE BY THE STATE DEPARTMENT, MR. STOCKMAN AT OMB DECIDED THAT THE AGREEMENT VIOLATED ADMINISTRATION POLICY AND INCURS "UNNECESSARY EXPENDITURES." STOCKMAN RECOMMENDED THAT THE U.S. NOT SIGN IT. I, FOR ONE, WOULD LIKE TO KNOW JUST WHO MAKES THIS ADMINISTRATION'S FOREIGN POLICY DECISIONS. DOES THE STATE DEPARTMENT OR OMB RUN OUR FOREIGN AFFAIRS?

THE MOST REGRETTABLE PART OF THIS ENTIRE MESS IS THAT THIS SEARCH AND RESCUE PROGRAM HAS BEEN AN UNQUALIFIED SUCCESS. IN THE TWO YEARS THE PROGRAM HAS BEEN IN OPERATION, THE LIVES OF 278 PEOPLE IN CANADA, THE U.S., AND WESTERN EUROPE HAVE BEEN SAVED. AS MORE SHIPS AND AIRPLANES ARE FITTED WITH THE PROPER DISTRESS SIGNALLING EQUIPMENT, EVEN MORE LIVES CAN BE SAVED.

ALMOST TWO WEEKS AGO, I WROTE LETTERS TO MESSRS. BAKER, SHULTZ, BALDRIGE, AND STOCKMAN IN WHICH I WARNED THEM THAT:

> "THERE IS EVERY REASON TO BELIEVE THAT A U.S. FAILURE TO SIGN THE AGREEMENT ON OCTOBER 5 WILL PERMANENTLY TERMINATE THIS HIGHLY SUCCESSFUL AND BENEFICIAL SEARCH AND RESCUE PROGRAM. AT THE VERY LEAST, IF THE U.S. FAILS TO SIGN, IT WILL PROVIDE THE RUSSIANS WITH A GOLDEN OPPORTUNITY JUST A YEAR AFTER SHOOTING DOWN KAL FLIGHT 007 TO PROCLAIM BEFORE THE WHOLE WORLD THAT THEY, NOT THE UNITED STATES, ARE THE HUMANITARIAN NATION."

THREE DAYS AFTER MY LETTERS WERE WRITTEN AN ARTICLE APPEARED IN PRAVDA TELLING HOW THE U.S. HAS APPARENTLY DECIDED TO BREAK THE ANCIENT RULE WHEREBY ALL SAILORS REGARDLESS OF CIRCUMSTANCES WILL GO TO THE AID OF THOSE IN DISTRESS. THE PRAVDA ARTICLE NOTES THAT "PEOPLE IN THE WHITE HOUSE CAN HARDLY BELIEVE THAT GIVING UP A SINGLE SATELLITE INTENDED FOR THE MOST NOBLE OF AIMS--SAVING HUMAN LIFE--WILL REALLY HELP IN THE STRUGGLE AGAINST THE ENORMOUS BUDGET DEFICIT."

THE U.S. HAS ALREADY BEEN MADE TO LOOK BAD BY THE INDECISION OF THE ADMINISTRATION. IF THE U.S. DOES NOT SIGN THE AGREEMENT IT HAS ALREADY NEGOTIATED WITH THE RUSSIANS, WE WILL APPEAR TO THE WHOLE WORLD AS HEARTLESS ISOLATIONISTS. WE SIMPLY CAN'T AFFORD TO LET THIS HAPPEN. THE U.S. CERTAINLY SHOULD SIGN THE SEARCH AND RESCUE AGREEMENT IN LENINGRAD ON OCTOBER 5.

Mr. SCHEUER. We will hear from Mr. Walter Greene and Mr. Robert Goodman of Portland, ME; Mr. Clinton Spooner of Alexandria, VA; and Rear Admiral Alfred Manning, Chief of the Office of Command, Control, and Communications of the U.S. Coast Guard.

Mr. Walter Greene, and Mr. Robert Goodman, you two folks are beneficiaries of this program. Could you each tell us succinctly about what your experience was, and what you think of the program, and what would you think of the United States operating out of the program, what it has meant to you to have it in operation, and what it would mean to people like you?

And don't be intimidated by the fact that you have a lot of people sitting around listening to you.

Chat with us informally about your experience, and how you would regard the breach of this agreement.

Mr. Goodman first.

STATEMENTS OF WALTER GREENE, JR., AND ROBERT GOODMAN, PORTLAND, ME; CLINTON SPOONER, ALEXANDRIA, VA; AND CAPT. M.E. GILBERT, ON BEHALF OF REAR ADM. ALFRED MANNING, CHIEF, OFFICE OF COMMAND, CONTROL, AND COMMUNICATIONS, U.S. COAST GUARD

Mr. GOODMAN. Speaking with Walter last night, and he did make a point that should be brought out, when we did go out there and did get picked up, we had no idea that it was a satellite that did pinpoint us out there, until we did get on the Coast Guard boat, and saying that, though, saying that we didn't know then, but right now, going out there, I would very much like it to be where it was and everything.

As far as the actual experience that led up to the rescue, we had been out 3 days. On the Saturday before the capsize, conditions continued to get worse and worse.

Mr. SCHEUER. You were delivering a boat to Europe, as I understand it?

Mr. GOODMAN. Yes, we were delivering a boat to England. There was much reason for the concern at this point. We did have EPIRB on board, which we were planning, if a situation arose, we were planning to use for aircraft, basically was what I thought.

Mr. SCHEUER. Would you translate that acronym into words for the benefit of the record and the audience?

Captain GILBERT. Emergency Position Indicating Radio Beacon. The aeronautical counterpart is ELT [Emergency Locator Transmitter].

In layman's terms, these are simply small radio devices that emit a signal when they are activated and allow aircraft or satellites to receive the signal.

Mr. SCHEUER. Please continue.

Mr. GOODMAN. We did have that. We did have survival suits. As conditions got worse, we made sure we knew where everything was, and basically at the time we were running with the storm with no sails, dragging quite a bit behind the boat to keep the speed down.

Sunday morning came, and it was—according to the Coast Guard, we had no way to really tell—but heights of the sea within the 50-foot range, and the wind gusts were up to around 60 miles an hour, and around 8 a.m. Sunday, the boat came off a wave a little too quick.

We did pick up a little bit of speed during the night, 10, 12 knots, with no sail up, and it did dig in and go over very gently.

Captain **Gilbert**. Mr. Chairman, there are a few viewgraphs that show this graphically that might be of interest to the subcommittee and the other people here, if you would like.

I believe the staff has them.

Mr. **Scheuer**. Should we do that now?

Captain **Gilbert**. It would give a better understanding. Tell us what we see in here.

Mr. **Goodman**. This is Walter and myself as the Coast Guard makes an attempt to pick up the second one of us. There were three of us on board. One has already been picked up.

Mr. **Scheuer**. This is a boat in its capsized position?

Mr. **Goodman**. Yes, and it does float very high. We did have an area below where we could stay, and we were out of the water somewhat. The water——

Mr. **Greene**. Right at this time, the position locating beacon is inside the boat running all the time. When we capsized, we put it on, and it stays on. It works inside a boat, outside a boat. It is a radio, any place where a portable beacon will work.

Mr. **Scheuer**. Is that the price of equipment?

Mr. **Greene**. This is not that one, because that one we left on the boat. This is one I own now, and my present boat, it must be like Congressman Lewis' there.

These things cost $170 to $250 retail today, and they are very available.

Mr. **Scheuer**. I should say, that is awfully expensive, but just saving three lives.

Mr. **Greene**. You have to push out the aerial, flip a switch on, and the machine is working. It is a very straightforward thing, waterproof, simple, only one frequency. A man doesn't have to tune it or anything, and the satellite is always there.

Mr. **Scheuer**. OK.

Mr. **Greene**. The one thing that should be noticed here is that it isn't exactly a Sunday afternoon on the Chesapeake Bay, and the Coast Guard guys there have survival suits on, and they are buckled on the cutter.

This rescue couldn't have happened if they didn't find it quickly, and the only way was with the EPIRB system. They came directly to us, because we had the radio going.

That gives us another idea of the size of the waves. When you are there, maybe it isn't so terrifying because you have been there the last 4 or 5 days, and I am just as glad I am here and not there right now.

These are pictures in the cutter afterwards. The Coast Guard did a very good job of bringing us aboard.

Mr. **Scheuer**. Do you gentlemen have anything else to add?

Mr. **Greene**. I can't see why they want to abandon the system because it saves money. Search-and-rescue operations are very, very expensive in terms of man-hours. You are exposing a lot of equipment to the elements, bad times, you know, in a hurricane or in a bad storm at sea.

Mr. **Scheuer**. Also, in terms of flying hours, very expensive aircraft to operate?

Mr. **Greene**. Yes, and all that stuff——

Mr. **Scheuer**. Many aircraft coming over the area, each taking one portion of the gridiron, so to speak, not a question of one vessel going right in a straight line to the people who are imperiled, but a question of many, many aircraft and many, many vessels on the sea coming through that area, looking for a needle in the haystack, sort of each taking their portion of the grid.

Mr. **Greene**. Yes.

Mr. **Scheuer**. I am going to ask the Admiral later for some expression of what the average sea rescue search would cost.

Mr. **Greene**. As a security thing, anybody who goes to sea and flies the plane, whatever, and they have the EPIRB, they are going to make things much more direct. With the satellite, things are even more direct, still.

You are not relying on the commercial aviation people to pick up EPIRB signals, but you are relying on a mechanical thing that is there for a purpose.

Mr. **Goodman**. Our boats have built-in EPIRB's, and very few boats leave our shop without having an EPIRB. We have pushed them very big on any boat going offshore, a very small price to pay.

Mr. **Scheuer**. We have about 12,000 of these boats and aircraft, 200,000, yes, 200,000 aircraft, and 6,000 boats equipped with EPIRB and the Russians at the present time have virtually none.

It is our understanding that they plan to equip their aircraft and seacraft with this equipment, so that Russian seamen, and pilots, and passengers also will be beneficiaries of this lifesaving system, and of course, we all would welcome that.

Mr. **Greene**. In New England, fishing boat operators get somewhat better, cheaper rate on their insurance if they carry an EPIRB and if the whole system falls out, because the satellites are not being used, they are going to pay for insurance, and more Canadian fish brought in at a cheaper price basically, and you are helping a lot of little industries when you help the EPIRB system.

Mr. **Scheuer**. Mr. Spooner.

Mr. **Spooner**. I would like to thank the chairman and the subcommittee for the opportunity to speak today.

Mr. **Scheuer**. We are privileged to have you with us. You went through an extraordinary experience, and we are privileged to hear it from your own lips.

Mr. **Spooner**. What I would like to do is give the committee a flavor for what the situation was before the SARSAT system went into effect, and my own experience specifically.

I was a recent law school graduate in 1975. A good friend of mine, and his three sons, were sailing their sailboat to Bermuda and asked me along.

We had an uneventful trip over, checked all the weather bulletins there, headed back on a Tuesday. That was June 24. It was calm for a couple of days, and Saturday morning, the winds started picking up; and we had a nice day's sail.

At night, the wind picked up even more and in the morning, when we saw the size of the waves we were sailing in, we were a little bit scared.

We began getting ready for any eventuality on Sunday morning, still checking the WGU-20, which is a recorded weather broadcast in Maryland, I believe.

The only indication we had was that there was a low pressure area off the Carolina coast. As far as we could tell, we were 200 miles off of Cape Hatteras at the time.

At about 1:30 on June 29, we were in 30- to 40-foot seas and 70- to 80-knot winds. The wind was blowing the spray off the tops of the waves. It would knock us about, sitting in the boat, we had some heavy drogues off the stern to slow our speed down and running a small storm gib, 20, 30 square foot to keep enough headway to have control.

The wind got under the boat, picked the boat up in the air and dropped it on its top. Myself, Dr. Stewart, the boat's owner and builder, and his oldest son, Roger, 17 at the time, were all topside. His two other sons, Keith, 14, and Gordon, 12, were down below.

They immediately swam out from under the boat through one of the hatches down into the water, out, and we got them on the boat.

What we knew and knew at the time is that Dr. Stewart was a diabetic; insulin is a requirement. We immediately began a search for insulin. It was kept in two different places in the boat, one in a refrigerator and another in a small plastic foam cooler.

The cooler was found floating empty and the refrigerator was open and also empty. At that point, it became a race with time. The seas were terribly confused, and about an hour and a half later, the eye of the hurricane, which was indeed Hurricane Amy, passed directly over top of us.

Sunday was spent sort of taking stock of our situation. We cut a couple hatches in the boat. We rigged up bunks inside to sleep above the water line.

Monday, the storm was continuing; Tuesday, continuing; and Wednesday, it began to abate. During this time, we gathered what little food we had, a couple cans of Spam, a can of potatoes, and three or four gallons of water. That was the extent of it.

We had—it started to clear off in the afternoon and the seas started dropping a bit, and Thursday morning dawned bright and clear, a beautiful day. The seas were a little rough, but quite a change from what they had been the last 3 days.

We saw our first ship on that day, it passed perhaps 3 miles from us. We had onboard Olin Co. marine flares, which were absolutely worthless in any survival situation. They were in their original packages and the packages either didn't keep the water out or were torn and allowed water in and made them worthless.

We had smoke grenades made by Survival Systems, which were also worthless, did not work when the lanyards were pulled. We had no way to contact the ship, which was 3 miles away and could have taken Dr. Stewart at that time to a hospital.

Thursday afternoon, Dr. Stewart started passing in and out of a coma. That afternoon, we heard search aircraft. I understood later that they were C-130's. I used to crew on C-130's when I was in the Air Force, so I am familiar with their sound; and you could hear the aircraft coming up, flying a racetrack pattern, come up, make a U-turn and go back on their grid, off to the west of us 10 or 20 miles at the most.

If we had had the SARSAT system in place at that time, we would have been picked up the first clear opportunity, probably Wednesday afternoon or at the latest, Thursday morning, and Dr. Stewart could have been given medical attention at that point, and he would be here today.

As it was, we didn't have the system. Friday morning, early, Dr. Stewart died, and was buried at sea. His three sons and I stayed out there for another week and a half, and were picked up Monday, July 14, not by any wonder of technology, but by a Greek seaman who was on the bridge of his brother's ship and he saw something in the water that looked different, and they had enough wherewithal to slow their ship down, enough curiosity to stop what they were doing, make a detour, and come investigate; and they found us and picked us up.

They brought us into Philadelphia, or into the mouth of the bay there, and the Coast Guard brought us into Cape May. To me, it is incredible that with such a system available now, we may have had the technology in 1975, but we certainly didn't have the international cooperation to make it work.

We now have that. It is in place, and it is working. It is absolutely incredible to me that the present administration or any rational human being could say we are going to save money by cutting out the system.

It is my understanding, and the Admiral can perhaps clarify the cost of the search. It was my understanding that it was in the neighborhood of $500,000, and that search was unsuccessful.

Now, it seems to me that if human life is worth anything, you can make a pretty good case if the Coast Guard is going to continue searching for people lost at sea, they are going to continue spending money, and if they can go directly to the individuals, instead of searching a long ocean path, then that is going to reduce the cost of the Coast Guard expenditures to accomplish their particular mission.

So it seems to me that this committee can make a pretty darned good financial argument for the economy of the SARSAT system, but even that aside, the emotional argument, the savings in human life is enough of a statement by itself.

Mr. SCHEUER. Well, thank you very much, Mr. Spooner. You have given us all a lot to think about. We are grateful to you for coming here.

Admiral Manning.

Captain GILBERT. Thank you very much, Mr. Chairman, and other members of the subcommittee. I am Capt. Ed Gilbert, Admiral Manning's deputy.

He had to go out of town because of a death in his immediate family. The funeral is today, so he could not be with us.

I have had a long association with the SARSAT program, and I have represented the United States on numerous occasions in international telecommunication forums.

And because of SARSAT's technical success and its ability to save lives, I know of no program that has captured the imagination of the international community to the extent that the SARSAT/COSPAS program has.

I have a brief prepared statement which I will summarize for you, and it will be available for the record. You have already asked a couple of questions, which I will respond to later.

The Coast Guard does welcome the opportunity to address the subcommittee today, and with me is Capt. Gregory Pennington, Chief of the Coast Guard Search and Rescue Division.

I will focus today very briefly on the Coast Guard's interaction and cooperation with the SARSAT Program and its ability to help us cover the search-and-rescue area of our responsibility, and this is about 23 million square miles of ocean area.

Our partnership with NASA, NOAA and the Air Force and the SARSAT team was formalized by an interagency agreement in 1977.

We operate two local user terminals, or Luts in the terminology, at Point Reyes, CA, near San Francisco, and the other is in Kodiak, AL; and these are complemented by an Air Force Luts at Scott Air Force Base, and a Canadian Luts north of us.

You have already mentioned that there are others in other parts of the world. You have already mentioned the number of lives that have been saved. The Coast Guard has been actively involved in a number of these.

I might review quickly our response and our action in the Gonzo case, which was the first case involving a U.S. citizen that the SARSAT Program was instrumental in helping.

These ELT's, or EPIRB's can be heard by overflying aircraft, if properly equipped or monitoring the system, or they could be heard by satellite.

The Gonzo EPIRB was heard by an overflying aircraft en route from New York to Spain. At that point in time, there was only one satellite in orbit, and the system was not up in an operational configuration.

Overflying aircraft cannot localize the transmitter, and we get a position indication only in the context of about 300 miles.

When this alert occurred, we contacted the Scott Air Force Base for information that might be available through SARSAT. It was not operational at that time. If it were operational, this stuff would have routinely come to us.

By searching their records, they had found that there was indeed a reception by the SARSAT earlier, actually before the aircraft had received the alert, and they passed to us the position, which was accurate within 20 miles.

This allowed us to launch an aircraft and hone in quickly on the distress location, and allowed us to dispatch a ship for the recovery.

I think you can see from this and other cases that the satellite reception of distress signals is very important to us, allows us to find something much more quickly. It allows us to help remove the search from search and rescue.

The Coast Guard is pleased that we can be a part of this important program. That concludes my formal statement, which is available for the record.

[The prepared statement of Admiral Manning follows:]

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

I WELCOME THE OPPORTUNITY TO ADDRESS YOUR SUBCOMMITTEE AND DISCUSS THE SEARCH AND RESCUE SATELLITE AIDED TRACKING (SARSAT) PROJECT. WITH ME IS CAPTAIN GREGORY A. PENNINGTON, CHIEF OF THE COAST GUARD'S SEARCH AND RESCUE DIVISION.

I WILL FOCUS ON THE COAST GUARD'S INVOLVEMENT AND INTEREST IN THIS PROGRAM. THE COAST GUARD IS RESPONSIBLE FOR SEARCH AND RESCUE (SAR) FOR THE MARITIME REGION OF THE UNITED STATES, WHICH ENCOMPASSES OVER 23 MILLION SQUARE MILES.

OUR PARTNERSHIP WITH NASA, NOAA AND THE AIR FORCE IN THE SARSAT PROJECT WAS FORMALIZED IN A 1977 INTERAGENCY AGREEMENT. THE COAST GUARD OPERATES AND MAINTAINS TWO GROUND STATIONS, CALLED LOCAL USER TERMINALS (LUTS), ONE AT KODIAK, ALASKA AND ONE AT POINT REYES, CALIFORNIA.

SINCE THE DEMONSTRATION AND EVALUATION PHASE BEGAN, THE COMBINED COSPAS/SARSAT SYSTEM HAS-BEEN CREDITED WITH SAVING 278 LIVES - 134 OF THOSE HAVE BEEN IN THE UNITED STATES. THE COAST GUARD HAS PROUDLY PARTICIPATED IN MANY OF THESE SAVES.

THE COAST GUARD WAS INTIMATELY INVOLVED IN THE FIRST MARITIME RESCUE ATTRIBUTED TO COSPAS/SARSAT, WHICH, INCIDENTALLY, WAS THE

DEPARTMENT OF TRANSPORTATION

STATEMENT OF

REAR ADMIRAL ALFRED P. MANNING JR.

CHIEF, OFFICE OF COMMAND, CONTROL AND COMMUNICATIONS

UNITED STATES COAST GUARD

BEFORE THE

COMMITTEE ON SCIENCE AND TECHNOLOGY

NATURAL RESOURCES AGRICULTURE RESEARCH & ENVIRONMENT

UNITED STATES HOUSE OF REPRESENTATIVES

CONCERNING

SEARCH AND RESCUE
SATELLITE AIDED TRACKING
(SARSAT)
SEPTEMBER 18, 1984

FIRST CASE WHICH OCCURRED IN THE UNITED STATES. I AM REFERRING TO THE RESCUE OF THE SAILING VESSEL GONZO, TWO OF WHOSE SURVIVORS HAVE ALREADY ADDRESSED THIS SUB-COMMITTEE. I'D LIKE TO TAKE A FEW MINUTES TO FILL IN SOME OF THE DETAILS OF THAT CASE. ON OCTOBER 10, 1982, SARSAT HAD NOT YET OFFICIALLY BEGUN ITS EVALUATION PHASE. ONE SATELLITE WAS IN ORBIT; THE GROUND SYSTEM HAD RECENTLY BEEN BUILT AND WAS STILL BEING CHECKED OUT. A COMMERCIAL AIRLINER ENROUTE FROM NEW YORK TO SPAIN PICKED UP THE DISTRESS SIGNAL FROM THE GONZO AND REPORTED IT TO THE FEDERAL AVIATION ADMINISTRATION NEW YORK OCEANIC CENTER. THE FAA THEN ALERTED THE COAST GUARD RESCUE COORDINATION CENTER (RCC) IN NEW YORK. SUCH AIRCRAFT REPORTS PROVIDE AN ALERT BUT NOT A LOCATION OF THE DISTRESS. THE BEACON COULD BE ANYWHERE WITHIN A 300 MILE RADIUS. THE RCC TELEPHONED THE SARSAT MISSION CONTROL CENTER AT SCOTT AFB WHERE ALL COSPAS/SARSAT DATA WERE BEING MONITORED. BASED ON THE SATELLITE DATA, THE POSITION OF THE BEACON WAS PINPOINTED TO WITHIN A 20 MILE RADIUS. A COAST GUARD AIRCRAFT WAS DISPATCHED TO THE SITE AND LOCATED THE GONZO. THE THREE CREW MEMBERS WERE LATER RESCUED BY THE COAST GUARD CUTTER VIGOROUS. IT IS WORTH NOTING THAT THE SATELLITE FIRST DETECTED THE BEACON SIGNAL SEVERAL HOURS BEFORE IT WAS HEARD BY AN AIRCRAFT.

AS YOU CAN SEE, THE USE OF SATELLITES TO ASSIST IN SEARCH AND RESCUE HAS GREATLY ENHANCED OUR ABILITY TO SAVE LIVES. FROM THE COAST GUARD'S POINT OF VIEW, THE DEMONSTRATION AND EVALUATION PHASE OF COSPAS/SARSAT HAS BEEN AN UNQUALIFIED SUCCESS. WE ARE EAGERLY LOOKING FORWARD TO THE TIME THAT THE SYSTEM BECOMES FULLY MATURE. WE ARE CONFIDENT THAT IT WILL SIGNIFICANTLY INCREASE THE SAFETY OF TRANSPORTATION ON THE SEAS.

THIS CONCLUDES MY FORMAL STATEMENT, MR CHAIRMAN. I WILL BE PLEASED TO ADDRESS ANY QUESTIONS THE SUBCOMMITTEE MIGHT HAVE.

Captain GILBERT. I would like now to—I believe you asked a couple of questions as we were going through the other testimony. One is the importance of location.

I mentioned an overflying aircraft gives us an indication, if it receives the signal of something in the order of a 300-mile radius, SARSAT is certainly capable of providing accuracy within, say, 5 miles.

That is particularly important, because the area of search, of course, is a square of the radius; and I did a couple of quick calculations and the difference between a 300-mile radius and a 500-mile radius is 3,600 times the area in the 300-mile area radius as in the 500-mile radius.

I did that quickly. I believe my trigonometry is correct. The importance of localizing the distress is very important. Many ocean regions of the world are never covered by overflying aircraft.

The polar-orbiting satellites provide a systematic way of covering the ocean areas of the world; and this, of course, is sporadic.

There were a number of questions on cost. It costs the Coast Guard roughly $2,500 an hour, when searching with the largest ship, the C–130 aircraft was mentioned two or three times.

It costs about $4,000 an hour to operate that particular aircraft. I understand in Mr. Spooner's unfortunate case, there were over 350 hours flown in the unsuccessful search, and we calculated in 1975 dollars with fuel at that time, that it has cost us somewhere between $700,000 and $1 million for that unsuccessful search.

Mr. SCHEUER. It would be twice that today.

Captain GILBERT. Yes, sir; I don't have the exact numbers. I believe that responds to the two questions that you asked earlier.

Mr. SCHEUER. Thank you very much, Admiral.

You talked about the cost of an unsuccessful effort being in the neighborhood of $1.75 million, $2 million, minimum. What was the cost of the successful effort to rescue Greene and Goodman here?

Captain GILBERT. Sir, I don't have that exact number; but I mentioned earlier that we got a position location within 20 miles and actually, in cooperation with the Canadians as well, several nations involved in this particular search.

An aircraft was dispatched, first I believe, a Canadian aircraft, and it was relieved by a Coast Guard aircraft. They localized the search area quickly and located the survivors.

Mr. SCHEUER. With one aircraft.

Captain GILBERT. A Canadian aircraft and then a Coast Guard.

Mr. SCHEUER. How many aircraft did you have out looking for the Spooner party?

Captain GILBERT. Typically, we would have several Coast Guard aircraft, and normally aircraft from other agencies on a search of that length of time.

The weather was so rough that we originally had vectored a merchant ship to their scene, because we had no Coast Guard cutter in the immediate area.

The merchant ship was unable to recover them because of the rough seas, and a Coast Guard ship arrived later within the same day, and with some shelter from the large merchant ship. It is very difficult to recover some in those conditions, you saw the waves.

This was a much less expensive case than the unsuccessful search.

Mr. **Scheuer**. Congressman Torricelli.

Mr. **Torricelli**. Thank you very much, Mr. Chairman.

In each of the individual stories, as one who sails myself, and as any person with any sense of humanity is overwhelmed by the story, one can't be overcome with trying to justify what could possibly be the basis of not continuing with this kind of surveillance in establishing this system.

I wondered in the Coast Guard's view, how extensive do you see this being in the future? In other words, the public might be justified in saying if we were going to spend this $50 million, and it was going to be for millionaires who have large yachts, maybe the public shouldn't be asked to pay the cost.

It is probably far broader than that, and in fact, we are probably involving tens of thousands of Americans at sea, and in the air, who would be safe. Where do you see the future of this, if we were to go ahead with our commitments, and the system were to continue to expand, how broad would the technology be?

Captain **Gilbert**. Thank you, Mr. Chairman.

Of course, our efforts here——

Mr. **Torricelli**. You don't have to call me Mr. Chairman.

Captain **Gilbert**. You called me an admiral earlier.

We are coordinating our efforts here internationally, and part of the communication conferences that I mentioned, we try to have an international approach to this, so that our ships and planes can be saved in other parts of the world and other ships and planes that come to our shores will have systems that are compatible with ours.

If we look at the international potential on ships, there are about 50,000 ships internationally of 300 tons and larger.

In the United States, there are about 16 million recreational boats and some of these wouldn't go very far offshore and might not need this capability, but a substantial number of yachts and boats, and of course, fishing fleets, and they are not millionaires.

Mr. **Torricelli**. We are not really talking about a technology that the Government would spend $50 million to help very wealthy people on their jaunts across the Atlantic to sail the Riviera, but people who go out and fish in an afternoon for a living or a few days to fish, out with their own small boats; people, many thousands of them, in recreational boating whose safety is at issue as well.

Captain **Gilbert**. Yes, sir, that is correct. It is available to all people that sail the ocean and it is available, though, in cost. We expect one of these EPIRB's to cost in the order of $500, so it is available to the professional mariner who depends on the ocean for his livelihood, the occasional weekend boater and one for the ones that can afford the Riviera, but that is a small percentage of people.

Mr. **Torricelli**. It appears to me that if the administration's plans continue, you are going to have to change an old Coast Guard tradition.

When rescuing someone and bringing them on the ship, instead of saying "Welcome aboard," you are going to have to say, "Don't thank us, thank the Soviet Union They are the people who are going to be rescuing America."

Thank you, Mr. Chairman.

Mr. **Scheuer**. Thank you, Bob.

We will be taking testimony later and asking questions later on the net incremental cost of this program, and when you factor out other benefits that you get from the two satellite programs, it is going to be a small fraction of $50 million, and may end up $5, $6, $7 million, something of that kind, so I don't want this $50 million to stick or get frozen in concrete in the record.

Congressman Tom Lewis of Florida.

Mr. **Lewis**. Mr. Spooner, you were on your way back from Europe, and you got caught in Amy?

Mr. **Spooner**. No, sir, we had gone to Bermuda. Dr. Stewart was a civil servant, worked for NASA at Langley Research Center in Hampton, and built this boat and sailed it for several years, and had been planning to make an ocean passage to Bermuda and this was the culmination of 3 or 4 years of effort on his part.

Mr. **Lewis**. You didn't have any emergency gear on board?

Mr. **Spooner**. We had an emergency locator beacon on board that was lost when the boat was capsized. The situation was that it was down below with the two boys when the boat capsized, the older of the two had the EPIRB in one hand, and his younger brother in the other hand.

When they swam down through the hatch into the water to come up, the younger boy was tangled in the rigging. The 14-year-old had to let go of the EPIRB to get his younger brother free.

Mr. **Lewis**. Mr. Greene, or Mr. Goodman, you were 3 days in the storm before you capsized?

Mr. **Greene**. A day and a half. In that time, we learned from his experience and took a locker, and physically nailed it into the locker, so if the boat floated away, it was going to be self-contained in the boat.

We knew our lives depended on this thing.

Mr. **Lewis**. When did you turn it on?

Mr. **Greene**. Fifteen or 20 minutes after capsizing.

Mr. **Lewis**. How long was it from the time that you capsized until the Coast Guard located you?

Mr. **Greene**. The aircraft came at about, less than 20 hours later. I guess actually from reading the testimony, the first Coast Guard plane that set out had to turn back. It had some sort of fuel problem, and had to turn back, so we would have been rescued even sooner if the first aircraft had come directly—I shouldn't say rescued, located.

Mr. **Lewis**. Mr. Chairman, thank you.

Mr. Chairman, are we going to have anybody discuss with us, as far as testimony today, where we have been and where we are today, as far as the technology, say, over the past 30 days? If not, I would like to discuss it just for a moment.

Mr. **Scheuer**. There is no reason why you shouldn't discuss it, Tom. We will have NASA and NOAA people here and can discuss it, too.

Mr. **Lewis**. Well, I just think it is important, as a member of the Air Force, I was a member of the 10th Air Rescue Squadron in

Alaska, and we went out and found people who were lost, and we didn't have the advantage of an ELT back in those days, but we had the Gibson Girl transmitter, if it survived the impact of the crash and if the person was in a physical position where they could continue to crank it in order to go down.

If you were out in the water, then you were in a position where you had to blow up a balloon and put the antenna out on a balloon to transmit with us, but since then, we have come a long way, and we have advanced to where we have now impact transmitters, when the aircraft, if it hits the ground, the ELT immediately goes on and it will survive a very horrible crash, if necessary, so that people that are incapacitated, these signals still go out and are transmitted in one frequency, under 121.5, and many, many ships and aircraft—I do it myself every 30 minutes—turn to 121.5 and listen.

If some aircraft have the proper direction, she could haul in on such a signal such as this. We have come a long way, and we have lost thousands of people, because we didn't have the capabilities that we have today.

I think it is incredible that we are here today listening and trying to defend the need for a second polar orbiter, and the need to save lives.

We have come so far in the past 10 to 15 years, where people like Mr. Spooner, who was fortunate, but particularly Mr. Greene and Mr. Goodman, wouldn't be here today, they would be members of the fish family in the sea if it wasn't for the rescue efforts that we have.

We need these orbiters, and we need these things, regardless of the costs. I don't believe we can replace a life, whether it is $100 or $10 million or whatever it is, and there are other areas we can establish priorities to come up with the money to do this.

Mr. SCHEUER. Normally, Members of Congress try to be pretty cool and objective about matters like this, but here you have a panel made up of three sailors and two ex-Army Air Force pilots, and it is with the greatest of difficulty that I maintain my cool in this situation.

I am sure the three of us feel extremely emotional about this matter. It seems to me that you could justify this almost regardless of cost, but the fact is, the costs are very moderate as we will find out a little bit later today, when you factor out the other benefits from the two satellite systems and get down to the net incremental cost for this sea rescue program.

You have all made an excellent presentation. We are grateful to you. You have dramatized and highlighted the issue better than any words emanating from this panel, the Congressmen up here, and we are very grateful to you.

We are going to hear a technical briefing from NASA and NOAA and the other agencies involved, and they are going to tell us our policy, and I can only prayerfully hope that somehow or other, they have seen the light and are going to continue this God-given program, and which for some reason I don't understand, but I am only too happy to accept, the Russians are giving their full-fledged cooperation, even though, as I said before, no Russian lives have been saved.

Apparently, they are going to install this technology on their aircraft and on their seagoing craft, and so, hopefully, in the future, the Russian sailors and Russian pilots and passengers will be the beneficiaries among all those other seamen and pilots of the world.

It is a very exciting prospect in a world that is so beset by problems and seemingly intractible disagreements between us and the Soviet Union, and that this one program with the Soviets can sort of stand as a beacon to us all, showing that a better world is possible.

We will now hear from Thomas McGunigal, Program Manager for SARSAT and U.S. Representative on the SARSAT/COSPAS Coordinating Group. Mr. McGunigal is with NASA. Jim Bailey, Chief of the SARSAT/COSPAS Unit of NOAA; and Lloyd Mosemann, Deputy Assistant Secretary of the U.S. Air Force for Logistics and Communications; and Colonel Al Heeter, Commander of the Air Rescue and Recovery Program; and Otho E. Eskin, Director of the Office of Advanced Technology, U.S. State Department.

Gentlemen, we are very happy to have you here today. All of your testimony will be reprinted in full at this point in the record. We hope you will sum up your testimony in about 5 minutes, since this is a very large panel, and I am sure we will all have some questions for you.

If you feel you would like to refer to anything you heard from the prior panel, please feel free to do so. We will go in the order in which you are sitting there at the table.

Mr. Thomas E. McGunigal, Program Manager of SARSAT.

STATEMENTS OF THOMAS E. McGUNIGAL, PROGRAM MANAGER, SARSAT, U.S. REPRESENTATIVE, SARSAT/COSPAS COORDINATING GROUP, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION; JIM BAILEY, CHIEF, SARSAT/COSPAS MANAGEMENT UNIT, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; LLOYD MOSEMANN, DEPUTY ASSISTANT SECRETARY, LOGISTICS AND COMMUNICATIONS; COL. AL HEETER, COMMANDER, AIR RESCUE AND RECOVERY PROGRAM, U.S. AIR FORCE; AND OTHO E. ESKIN, DIRECTOR, OFFICE OF ADVANCED TECHNOLOGY, U.S. STATE DEPARTMENT

Mr. McGUNIGAL. Thank you very much. I can't say how pleased I am to be here to testify before the subcommittee on the SARSAT/COSPAS Program.

I am going to go as quickly as I can to paraphrase it, and I would like to use some visual aids. We were asked to summarize the search-and-rescue problem in the United States.

The two major elements of the problem lie in the fact that we have an enormous area of responsibility, 3.6 million square miles of inland territory, 23 million miles of maritime search-and-rescue responsibility from the mid-Atlantic to just east of the coast of Japan. Second, and we have all heard in the testimony so far, we are a nation of fliers and boaters. For every thousand of our population, we own one aircraft, and for every 20 of us in the United States, we own one boat. So we are indeed a nation of fliers and boaters. With that many boats and airplanes, we have a great deal of accidental activity. In a typical year in the United States, we have 4,000 airplanes crash somewhere in the boundaries in our country.

In a typical day, the Coast Guard responds to 200 calls for assistance. Of those 200 calls, 60 require a search to find the boat that is in trouble. The key to effectively solving this problem lies in our ability, one, to become aware of the distress, and to be able to locate it accurately, so we can satisfy the third requirement, that is, to get our resouces on the scene as rapidly as possible, because in many, many cases, the more rapidly one can get there, the more effective we can be in saving lives.

The first use of beacons, ELT's and EPIRB's, came along in about the seventies. They were very, very simple devices, $150 to $300, very low-powered devices, and although they made crucial contributions to a number of rescues, the overflying aircraft part of the thing left a lot to be desired. They couldn't be localized very accurately. Many of the signals were missed. In 1976, the concept of using satellites to assist with regular monitoring of the Earth, listening for distress signals from ELT's and EPIRB's came along.

The interagency agreement among the U.S. teams was signed in 1977. The SARSAT agreement was signed in 1978 and SARSAT/Cospas in 1979, which made it possible for us to get this program going.

These radiate on the order of a tenth of a watt, so it wasn't a simple job, but we undertook it because there seemed to be some good promise.

Mr. SCHEUER. Could you pull your mike a little closer?

Mr. McGUNIGAL. The system works by having the distress transmitter radiate, a satellite in a low polar orbit flies by rapidly over the scene of the accident, and the signals are relayed to a special-purpose ground station. There computer analysis process looks for the Doppler effect, an apparent shift in frequency because of the rapid motion in the satellite and the distress transmitter.

We, indeed, can locate by computer analysis on the ground the source of the transmission. Once the data is processed, then it is handled by the Coast Guard and the Air Force, along with other information about that distress. That is the fundamental concept. I will briefly touch on the total U.S. team for doing the program. The interest has been very great. The Coast Guard is responsible for maritime search-and-rescue and operates two ground stations. They have evaluated the system in the search in inland and maritime regions. The Air Force operates the Mission Control Center for the system, and they are responsible for evaluating its effectiveness inland.

Up until now, NASA has provided the technical leadership because the system was in demonstration or development phase, and NOAA provides the two polar-orbiting satellites that carry the search-and-rescue instruments. The approach within the United States, as we go beyond the development phase and move into more regular use of the system, will be to keep the Coast Guard and Air Force doing what they have been doing, but in the case of NASA and NOAA, since the focus in the future will be on operating the system rather than on developing the system. Then NOAA will become the international leader of the system. NASA will still have a strong role in systems reports.

The next viewgraph illustrates the SARSAT project, which indeed is a joint project along with the French, Canadians, and the United States. The United States has the polar-orbiting weather satellites and the French and the Canadians provide the instruments listening for the distress transmitters. That is the SARSAT team. The total SARSAT/COSPAS joint project team is on the next viewgraph.

The Soviet Union's contribution to this program has been to provide Soviet instruments on Soviet spacecraft that match the NOAA weather satellites, so that we have, when we finally build up to full space segment, four satellites on orbit. It is important to have four satellites on orbit, because the contact time of any one satellite is limited. With four on orbit on average, we can get a contact in about an hour with a distress transmitter, so that is a very good number in terms of the total search-and-rescue scenario.

In addition to the countries shown there, we are expanding international partnerships and, as you have heard, the United Kingdom, Norway, Sweden, at least another dozen nations are about to come on board, so the international aspect is growing and increasing.

Next viewgraph, please.

This is the status of the program as we see it today. There are three Soviet spacecraft that have been launched within the framework, one SARSAT spacecraft and that unfortunately failed this June, and we plan to launch a replacement for it in November.

The next polar-orbiting weather satellite that is launched—there are 10 special ground stations around the world in the United States, Canada, France, Norway, also one in the United Kingdom. Mission control centers operate in conjunction with the ground stations 7 hours a day, 24 hours a day, 7 days a week around the world and finally, of course, we are coming up to a key milestone in the program.

We are about to complete the demonstration and evaluation phase of the program, and we have entered into negotiations in the United States among the French and the Canadians and the Soviets to extend the program, and that is the context in which the meeting in Leningrad should be viewed.

We will have passed the demonstration phase of the program, and now, moving into acceptance of it as an everyday operational fact of life. This illustrates how the system has been used in real emergencies. We had the opportunity to hear this morning testimony from a couple of people who were rescued, but their story has been repeated over and over again.

The United States benefits, we have 134 people, also see strong Canadian and European use. The Soviet Union never deployed the simple distress transmitters we have in the United States and Western Europe.

As a result, they have not benefited directly, but as pointed out, they were very pleased with the operation of the system, and are planning to equip their ships with distress transmitters that are compatible with the system. Is that the last viewgraph? OK, well, this shows the overall flow of the progam, and again, as we reach the end of 1984, it is essential we provide for immediate continuity of the system and that is what the agreement in Leningrad will secure for us.

As far as the technical options go, there is no alternative in the short-term than to continue to fly on the NOAA polar-orbiting weather satellites. They are the only ones equipped with search-and-rescue things already built and ready for launch. In the short-term, there is no alternative. It is probably 3 years or so. Beyond that, however, there are, now that the system has proven itself some attractive technical options to ensure we can meet our search-and-rescue commitment regardless of the continued development of the weather satellite program.

And the NASA recommendation is that we do develop technical options to guarantee our ability to the search-and-rescue commitment because of its importance to this country.

The NASA position is that, indeed, we have to continue on the polar-orbiting weather satellites in the near term, but in the long term, the country should be looking at technical options to allow us to meet our international commitments, even if the weather satellite program takes a different turn.

In other words, if, for any reason, we don't have satellites on option, this additional technical orbit will allow us to fill gaps in the program.

Thank you very much.

[The prepared statement of Mr. McGunigal follows:]

Statement of

Thomas E. McGunigal
Program Manager - Satellite-Aided Search and Rescue
National Aeronautics and Space Administration
and
United States Representative-COSPAS/SARSAT
Coordinating Group

before the

Subcommittee on Natural Resources,
Agriculture, Research and Environment of the
Committee on Science and Technology
United States House of Representatives

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to present testimony concerning the operation and benefits of the satellite-aided search and rescue program - COSPAS/SARSAT; an international, cooperative effort using weather satellites operated by the National Oceanic and Atmospheric Administration (NOAA), and the COSPAS satellites of the Soviet Union. As NASA's Program Manager for satellite-aided search and rescue, I represent the Agency which has the lead responsibility for the demonstration phase of the COSPAS/SARSAT program. I will describe briefly the system operation, teaming arrangements, actual experience to date, and further plans.

Background

When a plane crashes, or a ship is endangered, the greatest challenge facing search and rescue personnel is locating the scene of the emergency as quickly as possible. Studies have shown that if survivors of an air crash are rescued within eight hours their survival rate is over 50%. If the rescue is delayed beyond two days, their chance of survival is less than 10%.

Available technology and pressing needs combined in the early 1970's to allow new systems to be developed to assist in the solution of the search and rescue problem. Small beacons were developed for aircraft [Emergency Locator Transmitters (ELTs)] and ships [Emergency Position Indicating Radio Beacons (EPIRBs)]. ELTs are activated by crash forces, and float-free EPIRBs are normally activated when contacting the water. Either, can be turned on manually. These beacons are generally small, inexpensive, and light-weight units. For years, the only monitoring was done by overflying aircraft; therefore, aeronautical frequencies were used for the distress transmitters. By the late 1970's, ELTs and EPIRBs were deployed in large numbers in the U.S., Canada, and Western Europe.

There were immediate benefits and problems. Aircraft overflights provided incomplete and sporadic coverage. Highflying aircraft "see" large ground areas electronically, so localization of the received distress transmission was very difficult. Still, many lives were saved, and the need for ELTs and EPIRBs grew. Search and rescue authorities, therefore, continued to look for improved techniques to receive alerts and locate distress incidents.

NASA and NOAA in the U.S. and CNES in France had years of experience in using satellite techniques to locate and collect data from globally deployed weather platforms, high altitude balloons, floating buoys, migrating animals, etc. Canada had experimented with locating ELT's using Radio Amateur Satellite OSCAR. The exciting potential of using satellite technology to detect and locate distress transmitters led to the formation of the COSPAS/SARSAT project in the late 1970's.

How the System Works

When an accident, such as the capsize of a sailboat or the crash of an airplane occurs, the distress transmitter is activated, either automatically or manually. The signals are received by the satellite using relatively simple instruments, and are relayed to a ground station. This information from the satellite is used to determine the location of the accident. The rapid motion of the satellite over the scene of the accident causes a change in the transmitter frequency which appears to increase as the satellite approaches and decreases as it moves away. Computer analysis of this phenomenon - the Doppler effect - yields an estimate of the location of the transmitter, usually to within 20 km, and frequently much better than 20 km. At this distance, the direction finding receivers on search and rescue aircraft and boats can accurately and rapidly "home-in" on the crash scene. A single satellite equipped with search and rescue instruments can cover the entire earth every twelve hours. A constellation of four such satellites cuts this time to a maximum of three hours.

Satellites in geostationary orbit which have no apparent motion cannot be used to locate distress transmitters using the doppler effect and therefore have limited use in search and rescue operations. There have been discussions concerning future encodable ELTs and EPIRBs that may utilize geostationary orbit satellites.

The Development Team

Within the United States the satellite-aided search and rescue development work is a cooperative effort among NASA, the U.S. Coast Guard and the Federal Aviation Administration of the Department of Transportation, the U.S. Air Force, and NOAA. NASA is responsible for overall program management of the search and rescue mission including the development and systems engineering of the combined space/ground system. The U.S. Coast Guard and the U.S. Air Force, in their role as search and rescue operational agencies, are responsible for operating the ground stations and evaluating the performance of the system in the U.S. maritime and inland search and rescue regions. NOAA flies the search and rescue instruments on their operational polar orbiting weather spacecraft.

The global coverage of the polar orbiting satellites coupled with the universal need to improve search and rescue services led to intense international interest and wide participation in the endeavor. The U.S., Canada, and France have jointly developed the SARSAT system which is flying on the NOAA satellites. The COSPAS system was developed by the Soviet Union. In 1979 the SARSAT partners agreed with the Soviets on a joint demonstration project called COSPAS/SARSAT. Interoperability among the two systems was thus established, allowing all participating nations to use both systems to detect and locate emergencies. Since 1980, Norway, Sweden, the United Kingdom, Finland and Bulgaria have joined COSPAS/SARSAT. At least a dozen additional nations have also expressed an interest in participating.

Current Status

The first satellite within the framework of the joint COSPAS-SARSAT project was launched by the Soviet Union on June 30, 1982. During March of 1983, the second COSPAS satellite and the first SARSAT-equipped satellite, NOAA-E, were successfully launched. During June of 1984, the third COSPAS satellite was successfully launched and the NOAA satellite suffered an early failure of a critical component which precluded its ability to meet any of its mission requirements. Thus, at this time we are operating with three COSPAS spacecraft. The launch of the next search and rescue equipped NOAA satellite is scheduled for November, 1984. Ten ground stations and five control centers are in regular operation in the U.S., Canada, the USSR, Norway, and the United Kingdom.

Preliminary Results and Benefits

The performance of the combined satellite/ground system has equaled or exceeded expectations in terms of sensitivity, accuracy, and ground coverage afforded by the system.

The most exciting results produced to date using the COSPAS/SARSAT system, involve the use of the system to assist in the saving of human lives in actual distress incidents. As of August, 1984, the COSPAS/SARSAT system has contributed to the saving of 278 lives in Canada, the U.S., and Western Europe, and the list will continue to grow on a weekly basis. A synopsis of the circumstances of these rescues is attached. In many of these cases, the only alert was provided by the COSPAS/SARSAT system. In the other cases, where knowledge of the missing persons was available to search and rescue authorities, the accurate location data provided by COSPAS/SARSAT was crucial to the success of the mission. Among the COSPAS/SARSAT countries, only the Soviet Union did not have a large number of distress transmitters on their ships and aircraft; therefore, the immediate life-saving benefits of the system were not available to them. They are, however, very pleased with the results achieved by the joint project and are now planning to install distress transmitters on their ships and aircraft.

Continuation of the System

All users and participants in the operation of the COSPAS-SARSAT system are in agreement that the potential of the COSPAS-SARSAT system has been demonstrated and that it should become a key element of future search and rescue operations for general aviation and marine vessels.

The existing SARSAT and COSPAS-SARSAT Understanding covers the demonstration and evaluation phase only. Therefore, before the conclusion of the D&E phase, a new Understanding must be signed. This new Understanding, which is essentially negotiated, will represent agreement by the COSPAS-SARSAT partners to continue the operation of the system, including a commitment to continued COSPAS satellites, and continued Canadian and French SARSAT instruments on NOAA satellites for at least the next seven years. Within the United States, NOAA will assume the lead role for the operation of the system and will, therefore, sign the Understanding. The U.S. Coast Guard and Air Force will continue to operate the ground segment and NASA will provide systems engineering support.

This new Understanding provides for the continued operation of two NOAA satellites and two COSPAS satellites in orbit under "normal operations". However, this commitment for two search and rescue satellites need not imply an indefinite commitment to maintain two polar-orbiting weather satellites. NASA is studying the feasibility of several alternatives to flying the instruments piggy-back on NOAA's satellites. These alternatives, which include a small dedicated search and rescue satellite, can be cost effective. In view of the importance of the COSPAS/SARSAT program, NASA is prepared to work with the other interested agencies to meet the U.S. commitment for a two-satellite search and rescue system.

In conclusion, all of the government agencies involved, the Administration, and Congress, can take great pride in the remarkable successes achieved by COSPAS/SARSAT and in the international context in which the work was done, since both the benefits and costs have been widely shared.

Date August 22, 1984

COSPAS/SARSAT RECORD

Number of Persons Rescued to Date 278 (138 marine; 130 air; 10 pedestrian)

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
9/10/82	Canada, British Columbia	Cessna 172	3-John Zeigelheim, Pilot George Heemserk & Garry Vanamerelsvoot, Passengers	Led rescuers to within 22.5 K (13.9 miles)
9/29/82	Canada 160 miles north of Montreal in heavy terrain	Private Plane	1 survivor	Rescue teams reached scene 2 1/2 hours after COSPAS picked up signal. One passenger deceased.
10/10/82	Atlantic Ocean 300 miles off New England Coast	Capsized Catamaran seas running 25 ft.	3 sailors	USCG Cutter Vigorous and a merchant or tanker, Calif. Gerry, plus merchant vessel Atlantic ACE, served as windbreak for cutter which made 5 passes.
11/7/82	Bahamas	36-foot sailboat, "Blue Jeans" on way from Tortola to San Salvador Island,	5-Anne Whitney, owner Bradenton& Sarasota FL; Walter Coodeway Sarasota; Lorin Hall Sarasota; Nathaniel & Janet Gould, Palmetto. 3-men, 2wom.	Probably would not have been found without COSPAS. Helicopter rescue by CG chopper from Grand Turk.
1/30/83	Atlantic Ocean, 800 K (497 miles) west of Canary Islands	6 Meter (19 feet) catamaran sailing from Tenerife to Venezuela	2 men (Spaniards) Fernando Ramos Alberto Franco	1st rescue direction by French at Toulouse. They picked up signal from COSPAS on Friday (1/28). Plane from Las Palmas Airport (Canaries) spotted men in dinghy Saturday (1/29) and British merchant ship picked them up on Sunday (1/30) at 2:00 a.m.

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
2/1/83	State of Washington, 10 miles west of Winthrop Airport	light aircraft	2 men (students University of Washington)	FAA notified by concerned parents. FAA notified MCC. MCC got signal from COSPAS. Helicopter rescued men on 2/1, a day and a half after crash. Both men "cold, but in good shape."
2/6-7/83	Northern British Columbia, Canada	ski-equipped Piper Super Cruiser on round-robin flight out of Hudson Hope, British Columbia	2 persons	Reported overdue by Canadian officials. ELT signals picked up 2 hours later (11:11 p.m. PST, 2/6) Helicopter rescued party next day at 10:40 a.m. PST. Party not injured but suffered frostbite. Plane damaged ski and propeller landing on lake at 8,000' elevation. Signals picked up by RCC Victoria, BC, and CG in Kodiak and Point Reyes.
2/12/83	Newfoundland 58° 06'W 48° 18'N	Jet Ranger helicopter	1 pilot	Oil company reported chopper overdue. COSPAS picked up signals on 2 passes, info picked up by RCC Halifax and translated into location. Company search parties located chopper and pilot 2 hours later.
3/4/83	Littleton, New Hampshire	Light aircraft	1 pilot	Canadian plane off course. Landed on highway in U.S. Ground party rescue. Bad weather.
3/7/83	Sept Isle, Quebec	Cessna 183	2 persons	France, Canada & U.S. picked up signal from COSPAS. 1st time all three in one emergency.

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
3/14/83	75 mi. South of Kotzebue, Alaska near Serpentine Hot Springs, 65° 51' N, 164° 43' W	Single Engine PA-18	2 people - Bernard Schwind, pilot, and his 11-year-old son	Damaged landing skis and propeller in landing. Rescue by Alaska Army Guard 3rd Eskimo Scout Bn, and the Civil Air Patrol. Crash only 10.3 NM from Sarsat location of 66° 01.3' N, 164° 45' W.Family dog saved
4/3/83	Bay of Gascogne OFF French Coast	Sailboat	6 persons	Toulouse heard signal after alert from overflying aircraft. Rescue made by Spanish fishing trawler.
4/7/83	400 mi. South of Selawik, Alaska	Munz Northern Airline twin engine, British built Britten-Norman Islander	1 survivor-Mary Pat Collins. Ms. Collins, an airline employee, suffered broken bones in feet. Released from hospital April 19.	Musher McManus was returning to his home in Ambler, a 375-mile flight from Nome when plane crashed on a 3000-foot high mountain. He and his dog team had finished fourth in the all-Alaska Sweepstakes Race, a 408-mile run from Nome to Candle and return. Pilot, Donald E. Kelly, and musher Pete McManus, killed in crash. Eight of 11-member dog sled team perished, 3 survived.
4/11/83	90 miles from Florida East coast 28° 12N 78° 58'W	Vessel "Wellcraft"	2 persons	Vessel in distress with engine trouble. Located by SARSAT reception of EPIRB signals
4/12/83	Montreux, Switzerland	Single-engine Cessna 210	1 survivor (pilot)	On flight from Zurich to Sion, snow storm, crashed in mountains near Montreux. (continued next page)

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Ident.)	Number of Persons Rescued	Details
4/12/83 (cont.)	Switzerland			Airlines picked up weak intermittent signals. Toulouse MIC computed location to within 2.8 km (1.7 statute miles). Survivor flown out by Swiss rescue forces helicopter. One passenger killed.
4/23/83	9 miles SW of Leadville, Colorado	Cessna 172 Aircraft	3 persons	Aircraft crashed in deep snow at 11,000 feet. No survival equipment aboard. SARSAT initial contact on round robin flight out of Arapaho County Airport. Recovered by 571 medical detachment, Ft. Carson, Colorado. Crash site located two hours after crash, chopper there 1 hour later.
4/23/83	Near North Pole in High Arctic	Two Cessna 185s leased by Mason International Alaska, and chartered by Navy's Office of Naval Research	5 persons	Pilots became disoriented and landed, ELT picked up by Canadians in Edmonton and relayed to Trenton RCC, which alerted Danish rescue forces in Thule. Danish 2-engine Dakota (C47) flew to site, rescued people. One Cessna flew out with Dakota after siphoning fuel from other Cessna 185. No injuries. Remaining Cessna 185 to be repaired and flown out later.

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
4/25/83	Austria	Glider, crashed 14 kilometers (8.6 mi.) from last SARSAT point at altitude of 1,750 meters (5741 feet)	1 person (seriously injured)	Rescued by military helicopter after signal picked up by Toulcuse and relayed to RCC in Vienna
5/6/83	Near Eureka, Utah	Beech 18 Twin-engine aircraft	1 person	Flight from Salt Lake to Las Vegas, Nevada. SARSAT location following overdue AK report and sighting by Utah Civil Air Patrol plane over 14-16 miles off. Rescued suvivor was passenger. Pilot walked to safety.
5/28/83	200 miles NE of Bermuda 35° 55'N 68° 21'W	Sailboat "Walrus"	1 person	USCG located vessel with engine and rigging problems SARSAT provided position from EPIRB signals
5/30/83	West of Jamaica 18° 50'N 79° 18'W	Sailboat "Miclaraluz"	3 persons	Sailboat with all sails blown out and auxiliary engine inoperative.
5/30/83	Off California coast 34° 55'N 23° 40'W	Sailboat "Sandman"	3 persons	USCG located vessel with damage and non-functioning navigational equipment from SARSAT-provided position from EPIRB signals.
5/31/83	Canada, District of Mackenzie just north of British Columbia border. Coordinates: 60° 12' N 124° 42' W	Aircraft Bellanca Scout	1 person, uninjured last name Malesku	Crash occurred at a remote airstrip. Blown tire

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (name & ident.)	Number of Persons Rescued	Details
6/3/83	Northern British Columbia, Canada Coordinates: 58° 40'N 124° 42'W	Twin engine Piper Seneca, red with blue and white stripes. Call sign or identification, CG-GIB	1 person. Pilot, M. Kostiuk, rescued. Suffered facial injuries and frost bite.	Plane on flight from White Horse (Yukon Terr.), to Meadow Lake (Sesk.) via Port Nelson (BC). Pilot, who had flown route 48 times previously, was going home to celebrate parents wedding anniversary. Plane crashed at 5,300 foot level of mountain in bad weather. Passenger on board killed. COSPAS I signals received by Kodiak LUT late PM June 2. Bad weather precluded survivor pick-up until AM June 3. Flown out by chartered helicopter to Port Nelson Hospital.
6/11/83	Alaska 65°34 North, 164°49'West on Seward Peninsula	PA-12, red & cream N989A, single-engine Piper cub	1 person Carl Gravogel, P.O. Box 941, Nome, AK (only person on board) Employee of Alaska Fish and Game Commission	Plane overdue on flight from Nome to numerous wilderness areas & return to Nome. Flight Service reported overdue at 2300 local, June 10. Satellite reports confirmed, & Civil Air Patrol aircraft was launched from Nome at 0349 June 11. Aircraft, down because of engine failure, located at 0650 June 11. Uninjured pilot walked 6 miles to nearest airstrip, where he was picked up & flown to Nome. CAP flew 2 sorties for 4.1 hrs flying (continued next page)

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons	Details
6/11/83 (cont.)	Alaska			time. CAP pilot, Mr. Wendell Wassman. Weather VFR. COSPAS I & II signals to within 7 miles of aircraft, about 20 miles E of Nome.
6/22/83	Canada Dawson City Yukon Territory	Cessna 172	1 person name unavailable	Medivac arranged for injured pilot.
6/24/83	Florida. 40 miles North of Cedar Key on west coast of Florida, about 95 miles N of entrance to Tampa Bay	Twenty-four foot pleasure craft, Pioneer II	5 persons on board: Dr. Larry Bachnik, dentist; Jim Aerts, general contractor; and their sons, Eric & Frank Bachnik (15 year old twins), & Mike Aerts, 9; all of St. Petersburg.	Irrepairable malfunction in stern drive unit & taking on water. Radios would not reach Coast Guard. EPIRB signal picked up by COSPAS I and COSPAS II & repeated to Scott AFB, Ill., where officials notified Seventh District Coast Guard in Miami. Forty-one foot patrol boat out of Yankeetown, FL rescued. Distress began Friday afternoon June 24. Coast Guard reached Pioneer II at 0400 local June 25. Towed boat to port. No injuries.
6/25/83	Alaska 61°28'N 164°17'W, near Prince William Sound	PA-18 white & green N2568J single engine Super cub	3 persons. Pilot was George Murphy, 8502 Heather Circle, Anchorage. Passengers names not available.	Anchorage Flight Service reported overdue aircraft on a sight-seeing flight from Lake Hood near Anchorage to Knik Glacier, 35 mi. NE of Anchorage. Plane flipped onto back on landing. After several reports (continued next page)

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
6/25/83 (cont.)	Alaska			received from COSPAS satellite, Civil Air Patrol alerted & launched aircraft 0455 local June 25.CAP crew of Mr. Mel Fry & Mr.Griffin located aircraft at 0616 June 25. Alaska State Tropers launched helicopter, piloted by Mr. Larson,from Anchorage at 0715. Helicopter reached scene at 0820 & picked up 3 uninjured survivors.The 3 had walked 6mi. from aircraft. COSPAS I and COSPAS II signals to within 3 mi of aircraft.The search was about 30 miles SE of Whittier.
7/1/83	Livermore, California	Grumman Cheetah single-engine	1 person	Reginald Petty, 58, certified flight instructor with 10,000 hours, of Fair Oaks, California, on flight from Phoenix Field, Sacramento, to Livermore. No flight plan. Crashed into hillside about 7 a.m. Coordinates determined from COSPAS signals around 2 p.m. and rescue carried out by East Bay Regional Park Service helicopter about 2:30 p.m. Taken to Valley Memorial Hospital, Livermore, then transferred to a hospital in (continued next page)

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
7/1/83 (cont.)	California			Sacramento. Suffered broken jaw, skull, and hip. Still in hospital as of July 22, 1983.
7/25/83	100 miles NE of Bermuda 33° 56'N 66° 4'W	Sailboat "Gusto"	1 person	Sailboat with broken rudder located from EPIRB signals.
8/2/83	Canada, southwest of Hudson Bay. Coordinates: 53° 37' N 87° 04' W	Canoe	2 persons. Allan Berry and Jeff Hyatt, both of Ottawa.	Pair making white water trip to Winik River when canoe capsized on the Tashka Rapids, putting both ashore with minor injuries and 3-4 days supply of food Activated ELT. Signal picked up by SARSAT on two passes making first SARSAT assist in rescue. First signal received at 1540Z (1140 local) Aug 1. Second signal received at 1735Z (1335 local). Canadian rescue forces launched Buffalo two-engine aircraft within hour, because of distance didn't reach area until 0039Z (2039 local). Spotted survivors on second pass, dropped portable radio, called provincial gov't. for assistance. Ministry of Natural Resources arranged for helicopter pick up. Survivors brought to Moosonee, Ontario, hospital

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
8/6/83	Maine. Coordinates: 45° 53' N 68° 53' W	Single-engine Piper Cherokee, white and green. Call sign CGPJX (Canadian)	3 persons. Pilot, Dale Brooker, address not known, and two passengers.	Plane on flight from Sherbrooke, Quebec, to Fredericton, New Brunswick. Plane crashed at 3,600-foot level on Mt. Katandi, about 15 mi. northeast of Millinocket in Central Maine, in bad weather, 300-foot ceiling, 1/2-mi. vis. Canadian rescue forces picked up survivors and flew to hospital in Millinocket. Pilot suffered serious injury; one passenger had broken arm; and the other one was in good condition. First notification from Trenton (Canada) RCC. COSPAS/SARSAT combined.
8/8/83	Canada: British Columbia Coordinates: 57° 37' N 87° 09' W	Type aircraft unknown. Believed to have U.S. registry.	2 persons. Names not available.	Details not available. Signals repeated by COSPAS 1.
8/11/83	Alaska 61° 56N 148° 30W	Aeronca Champion	2 persons pilot and passenger	Helicopter brought survivors to Elmendorf AFB Hospital. Pilot treated for broken nose.
8/14/83	Quebec Province, Canada	Cessna on floats	4 persons	Taken to Quebec Loretteville Hospital by helicopter. Only minor injuries.

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
8/14/83	Saskatchewan Province, Canada 57° 19N 106° 12W	Type of aircraft unknown.	1 person	No other information available
8/16/83	Atlantic Ocean 54 statute miles west of Gibraltar	Fishing vessel	8 persons all fishermen	Rescued by another fishing vessel, Alonso Cazorla.
8/19/83	Sweden, near Norwegian border 63° 20'N 12° 5'E	Airplane	2 persons	COSPAS/SARSAT confirmed alert and provided location of crashed airplane
9/2/83	Atlantic Ocean 124 statute miles west of French Coast	Dutch sailboat	2 crewmen	Rescued by Polish freighter Kopalnia.
9/19/83	Davis Straight West of Greenland 65° 54'N 53° 25'W	Fishing trawler	6 persons	Six crewman abandoned fishing trawler by dinghy and landed on a small island. The EPIRB signals were used to determine the vessel's location by a danish Air Force Gulfstream III aircraft.
9/24/83	36° 46N 07° 52W Atlantic, off coast of Portugal	Fishing boat	10	Morse Code signals picked up. French Mission Control Center at Toulouse informed Lisbon and Seville (Spain) rescue elements. Emergency signals also picked up by overflying airliners. Spanish Navy made contact with ship in distress and rescued crew. Rough seas. Sarsat error only 5 kilometers (3 miles).

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
9/25/83	44° 44'N 10° 30'W Atlantic, off coast of Spain	6.5-meter (21-foot) French sailboat	1	Sailboat Cagouilles Bleues engaged in mini-transatlantic race from Penzance to Antigua. Toulouse MCC notified French maritime rescue center. Spanish Navy ship alerted. Rescue accomplished by French tanker Licorne Pacifique, which had been rerouted based on COSPAS positions. Position error 5 kilometers (3 miles).
10/2/83	Canada 50.18N 70.36W	Aeronca aircraft	2 persons	Crash in heavily wooded area after engine failure
10/3/83	United Kingdom 49N 27W	6 foot Sailboat "The Big C"	1 person	Airliner provided 1st alert SARSAT provided position
10/8/83	Alaska 61° 55'N 153° 25'W	Piper PA-18 Airplane N 9474D	2 persons	
10/8/83	Central Wisconsin 44° 23'N 89° 10'W	Piper Cherokee Airplane	1 person	First alert by pilot; SARSAT/COSPAS provided location
10/10/83	Southern France 43° 31'N 3° 19'E	Airplane	4 persons	SARSAT/COSPAS provided location of airplane in crash in mountainous terrain
10/16/83	Central Idaho 45° 16'N 115° 23'W	Cessna 172 Airplane	2 persons	Airplane crashed at mountain ridge in low cloud and fog. Overflying aircraft heart ELT. SARSAT/COSPAS provided location
10/18/83	North Sea 58° 14'N 6° 8'E	Cargo vessel	4 persons	Tromso Lut computed vessel's position from ELT signals. Helicopter dispatched to rescue crew.
10/27/83	Atlantic Ocean off East Coast United States	Yacht "Beefeater"	3 persons	Yacht "Beefeater" struck something in heavy water Crew activated EPIRB

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Ident)	Number of Persons Rescued	Details
10/29/83	Alaska 68° 33'N 161° 23'W	Piper PA-18 airplane	2 persons	
11/7/83	Alaska	Cessna Aircraft N3311D	3 persons	SARSAT provided first notification of incident and position of downed aircraft
11/8/83	North Atlantic 75° 17'N 14° 30'E	Trawler	7 persons	COSPAS/SARSAT confirmed alert and provided location of sinking trawler
11/12/83	North Atlantic Ocean 36° 03'N 67° 30'W	Sailboat "Windmere"	4 persons	Notification by marine radio-telephone. COSPAS/SARSAT provided position
11/26/83	Alaska 56° 43'N 132° 10'W	Cessna 150 aircraft N8403M	2 persons	Overflying aircraft received ELT signal from aircraft inverted in snow. SARSAT/COSPAS provided position.
11/27/83	Gulf of Bothnia Between Sweeden and Finland 61° 25'N 17° 51'E	fishing boat	3 persons	Crew rescued by Swedish helicopter. COSPAS provided notification and position.
12/1/83	600 miles SW of San Francisco 29° 58'N 131° 08'W	Sailboat "Maluhia"	1 person	Crew activated EPIRB after sails blew out and food spoiled. Supplies, radio and emergency sail dropped by aircraft.
12/6/83	Northern Germany 52° 35'N 7° 58'E	Airplane	2 persons	COSPAS/SARSAT provided location
12/7/83	Northern Norway 67° 34'N 15° 49'E	Helicopter	5 persons	COSPAS/SARSAT confirmed alert and provided location
12/15/83	North Sea 62° 6'N 5° 6'E	Ship	11 persons	COSPAS/SARSAT confirmed alert and provided location of collision

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Ident)	Number of Persons Rescued	Details
12/27/83	Alaska	Cessna 170 airplane	3 persons	SARSAT aided in locating aircraft reported overdue
12/31/83	Pyrenees Mts. Northeast Spain	Light airplane	3 injured survivors (4th occupant dead)	Aircraft crashed while crossing Pyrenees Mts. ELT manually activated. SARSAT determined position within 4.6 KM
1/1/84	NE of Muskoka, Ontario 45° 34'N 78° 12'W	Piper Airplane C-GNGM	1 person	Aircraft made forced landing on lake after carbureator icing. SARSAT provided notification & position
1/10/84	Alamosa, CO 37° 26'N 105° 52'W	Cessna 182 Airplane	2 persons	Aircraft crashed near unattended airport at night in dense fog. SARSAT provided first notification & position. CAP ground search rescued injured survivors.
1/18/84	Anticosti Island, Ontario Canada (Gulf of St. Lawrence) 49° 35'N 62° 45'W	DeHaviland Otter Aircraft	4 persons	Aircraft crashed in heavy woods, 2 persons w/minor injuries, 2 w/serious injuries. SARSAT provided first alert & position information.
1/22/84	Gulf of Alaska 55° 51'N 136° 25'W	96-ft. Fishing vessel "Mary Lou"	3 persons	Vessel capsized in heavy seas. Ham radio provided first alert, SARSAT provided position and drift information. Three persons rescued, two lost.
2/2/84	Mediterranean Sea	Fishing Vessel	6 persons	SARSAT/COSPAS provided location of lifeboat with crew of fishing boat abandoned in 50-knot wind and 23-foot waves
2/9/84	Alaska	Cessna 172 Airplane	1 person	SARSAT/COSPAS provided notification and location

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Tail No.)	Number of Persons Rescued	Details
2/11/84	Southeast Wyoming 41° 04'N 105° 17'W	Piper Cherokee Airplane	1 person	Aircraft crashed in drizzle fog, and snow. FAA provided first alert. SARSAT/COSPAS provided location.
2/13/84	Southeast Virginia 36° 40'N 76° 19'W	Cessna 172 Airplane	1 person	Aircraft crashed in fog. FAA provided first alert, COSPAS provided location
2/21/84	Montague Island Gulf of Alaska 59° 52' N 147° 27' W	Piper PA-18 Super Cub airplane N82736	2 persons	SARSAT provided only notification and position of aircraft damaged in beach landing off flight-planned route.
2/22/84	Alaska, North of Cook inlet 61° 51' N 151° 05' W	Cessna 170 airplane N4672 C	2 persons	SARSAT/COSPAS provided first alert and location.
2/26/84	Mediterranean Sea 40 nm SE Toulon, France 42° 15' N 7° 02' E	Sailboat "Star Voyage"	1 person	"Star Voyage" engine and mast disabled and hull leaking. Vessel radioed distress call and activated EPIRB. COSPAS provided location.
2/28/84	Alaska 61° 24'N 157° 4'W	Piper Super Cub N7085	2 persons	Alerted by failure to arrive SARSAT/COSPAS provided position
3/6/84	Near Kenai, Alaska 61° 05'N 154° 00'W	Cessna 170B Airplane N2715D	2 persons	COSPAS confirmed alert and provided location after overflying aircraft provided first alert
3/8/84	Atlantic Ocean 155 NM SE Cape Lookout, NC 32° 30'N 74° 41'W	Sailing Vessel "Harbinger"	9 persons	Sailing vessel disabled in gale. SARSAT/COSPAS provided first alert and position.
3/11/84	NW Alberta, Canada 57° 59' N 119° 49' W	Helicopter	1 person	Helicopter lost and out of fuel was detected and located by SARSAT/COSPAS.

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Ident.)	Number of Persons Rescued	Details
3/16/84	Eastern Idaho Near Montana Border 44° 31'N 112° 17'W	Piper Cherokee Airplane	1 person	SARSAT provided first notification and position. Aircraft crashed in mountains in snow and fog; 1 survivor and 1 fatality
3/29/84	90 miles west of Anchorage, Alaska 61° 30'N 152° 30'W	Cessna 206 airplane N 756 XB	6 persons	Aircraft crashed in bad weather in mountain pass. No flight plan. Overflying aircraft received ELT, SARSAT provided location.
3/30/84	Pacific Ocean 60 NM SW Monterry, CA 35° 43' N 122° 4'W	Sailing Vessel "Arctic Wind"	1 person	SARSAT/COSPAS provided first alert and position of vessel adrift with rigging and sails damaged
4/3/84	Northwest Alaska 68° 07'N 165° 40'W	Dog Sled Driver	1 person	Woman dog sled driver suffering from flu and cold. SARSAT/COSPAS provided notification and location.
4/5/84	Gulf of Mexico 27° 49'N 91° 5'W	65 foot work boat	2 persons	COSPAS/SARSAT provided position of vessel adrift due to engine failure
4/7/84	Eastern France 48° 06'N 7° 11'E	Airplane	2 persons	Airplane crashed in mountains in bad weather. SARSAT provided first notification and location. Two injured survivors rescued; two deceased.
4/26/84	Central Alaska 62° 39'N 155° 47'W	Bell 47 Helicopter	1 person	SARSAT/COSPAS provided position of downed helicopter which had not filed flight plan.
5/4/84	North Atlantic 38° 15'N 67° 48'W	47-ft. fishing vessel "Tabooma"	5 persons	Vessel lost steering & was taking on water due to broken & missing planks. SARSAT/COSPAS provided alert and position.

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Ident.)	Number of Persons Rescued	Details
5/19/84	Atlantic Ocean Near Azores 38° 7'N 28° 23'W	6-meter yacht	1 person	SARSAT/COSPAS provided position
6/11/84	NE Alaska 68° 6'N 141° 57'W	Canoe	3 persons (1 lost)	COSPAS/SARSAT provided first alert and position. Canoe overturned in Coleen River. Three survivors rescued from sandbar.
6/11/84	North Atlantic 46° 12'N 38° 15'W	60-foot Trimaran sailboat	1 person	COSPAS/SARSAT provided position of vessel dismasted during single-handed trans-Atlantic sailboat race
6/23/84	North Atlantic 40° 55'N 68° 56'W	78-foot fishing vessel "Cormorant"	4 persons	COSPAS/SARSAT provided first alert and position of fishing vessel which burned and sank. Crew rescued from rubber raft by Coast Guard helicopter
6/23/84	Aleutian Islands, SW Alaska 51° 38'N 176° 48'W	Kayaks	4 persons	Four men in 4 seagoing kayaks circumnavigating Adak Island encountered strong winds & high seas 1 man injured. COSPAS/SARSAT provided only alert & position.
6/25/84	Southern Alaska 61° 30'N 150° 26'W	Piper "Super Cub" Aircraft	3 persons	SARSAT/COSPAS provided first alert and position of aircraft which had crashed in heavily-wooded area. Two of three survivors were injured; one seriously
6/26/84	North Atlantic 43° 29'N 41° 00'W	Sailboat "Rotex Challenger"	1 person	COSPAS/SARSAT provided first alert and position of sailboat in single-handed transatlantic race which was taking on water

COSPAS/SARSAT RECORD

LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Ident)	Number of Persons Rescued	Details
5/18/84	Atlantic Ocean 125 nm from Bermuda 32° 56'N 67° 14'W	Sailboat "Christine Marie"	4 persons	During gale-force winds the vessel lost its main sail and self-steering and its engine was inoperable. SARSAT/COSPAS provided alert and location.
5/30/84	Atlantic Ocean 140 nm from Bermuda 33° 49'N 66° 20'W	Sailboat "Ranger"	3 persons	Vessel sustained sail damage and broken radio antenna during storm and was low of fuel. SARSAT/COSPAS provided alert and location.
6/2/84	Atlantic Ocean 60 nm east of Atlantic City, New Jersey 39° 30'N 73° 00'W	Sailboat "Kari"	3 persons	Vessel was dismasted and adrift in very poor weather Overflying aircraft and SARSAT/COSPAS provided alerts. SARSAT/COSPAS provided location.
6/27/84	Alaska 63° 27'N 154° 00'W	Helicopter N2822B	1 person	COSPAS/SARSAT provided position for helicopter, lost and low on fuel, which landed on river sandbar
6/30/84	NW Territories Canada 60° 35'N 111° 4'W	Piper Cherokee Airplane N3578D	2 persons	Aircraft lost and out of fuel force landed 52 miles from planned route. COSPAS/SARSAT provided location.
7/13/84	Southern Ontario, Canada 48° 31'N 89° 44'W	Piper Aztec Airplane C-FAKX	4 persons	Aircraft called mayday prior to crashing. COSPAS/SARSAT provided location
7/19/84	British Columbia Canada 56° 18'N 122° 51'W	Piper Super Cub Airplane	4 persons	First alert by overflights. COSPAS/SARSAT provided location.

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LIST OF EVENTS

Date	Location	Type of Ship/Plane (Name & Ident)	Number of Persons Rescued	Details
7/20/84	Western Arizona 34° 36'N 113° 24'W	Cessna 172 Airplane N5001E	3 persons	Aircraft crashed in remote area. First alert was over due notice. COSPAS/SARSAT provided location. Minor injuries to survivors.
7/22/84	Northern British Columbia Canada 58° 57'N 126° 37'W	Piper Super Cub Airplane C-FBXS	2 persons	Aircraft lost power and crashed on takeoff. COSPAS/SARSAT provided only alert and location.
7/26/84	Newfoundland Canada 49° 01'N 54° 59'W	Cessna 185 Airplane C-GDXG	3 persons	Float plane on wilderness lake incurred engine fire at engine start, pilot activated ELT. COSPAS/SARSAT provided alert and location.
7/30/84	Southern Alaska 60° 00'N 150° 38'W	Hikers	2 persons	COSPAS/SARSAT provided only alert and location of two hikers fatigued and with minor injuries.
8/2/84	Southern Alaska 61° 16'N 150° 44'W	Cessna 140 Airplane N89628	1 person	Airplane landed on road in remote area after fuel depletion. SARSAT/COSPAS provided alert and location.

COSPAS/SARSAT RECORD

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Mr. **Scheuer**. Mr. Jim Bailey, Chief of the SARSAT Management Unit of NOAA.

Mr. **Bailey**. Thank you, Mr. Chairman. I have a prepared statement that I would like to read.

I am pleased to be here today to testify on the subject of the satellite-aided, search-and-rescue program, SARSAT/COSPAS.

As NOAA's program manager for satellite-aided, search-and-rescue, I am responsible for overseeing the transition of the program from the experimental phase directed by NASA to the operational phase that will be the responsibility of NOAA.

This transfer of responsibilities follows normal practice. NASA, as the lead civil agency for civil space research and development, conceived the program and provided the U.S. funding for the original experimental phase, including the cost of modifying the NOAA environmental satellites to accommodate the search-and-rescue equipment.

NOAA, as the operational Agency responsible for the satellites, assumes the management role from NASA with the completion of the experimental phase.

With the development and spacecraft modifications costs having already been funded by NASA, and the principal onboard equipment provided by France and Canada, only a few percent of the total cost of a polar orbiter is attributable directly to the search-and-rescue system.

Therefore, the assumption of management of the system is not a significant new burden for NOAA.

With the preceding as background, it is now appropriate to consider the events that have led to the current situation. There was always the intent to transition the program to full operational status when the system had proven itself, and to do so with the widest possible international participation.

To that end, when it was evident that the system was exceeding even the most optimistic projections, preparations were begun for a new multilateral agreement for an operational system.

Drafts of the new agreement were exchanged over a period of many months and finally, in April 1984, agreement was reached on a final draft by Canada, France, the U.S.S.R., and the United States that could be circulated in each country for approval.

The proposed agreement was transmitted to the Department of State in May 1984 under the Circular 175 process. The Office of Management and Budget was briefed for the first time in July on the continuing negotiations, with particular emphasis on the continuation of the two polar-orbiting environmental satellite system.

It was this subject about which OMB raised concerns and which the administration has been discussing. I am pleased to say that as a result of these discussions, the administration agrees to enter into negotiations in Leningrad and is desirous of providing a two-SARSAT System within the President's budget.

Thank you very much.

Mr. **Scheuer**. Thank you, Mr. Bailey.

We are saving the questions until the end of the panel, but I am a little flabbergasted, and I should say that I am very pleased at what seems to be an apparent reversal of policy.

Does this mean that the administration is supporting a two-satellite system, and that they will sign the agreement that has been negotiated as scheduled in Leningrad on October 5, that calls for a two-satellite, polar-orbiting system?

Mr. BAILEY. Yes, sir; they are supporting a two-SARSAT System, not necessarily the two-polar, the two-SARSAT System being some other means of providing this service that we are looking into. Other than the METSATS, for example.

Mr. McGunigal referred to a gap filler, or a dedicated satellite system. The United States will provide two SARSAT-equipped satellites, we were given permission to sign that agreement.

Mr. SCHEUER. It is not a question of being desirous of doing something, well, I take it you are here, apart from your desires and apart from the budget, you are making an unequivocal statement that you will sign the agreement that has been negotiated with the Russians as scheduled on October 5 in Leningrad, providing for a two-satellite system, or the equivalent?

Mr. BAILEY. Yes, sir.

Mr. SCHEUER. Unequivocally.

Mr. TORRICELLI. It is already 11. We can already say we had a good day's work here. I don't expect you to go into significant detail; but when you say equivalent, could you give me some idea of what you see those options as being?

Mr. BAILEY. One of the options that we are looking into is perhaps flying a SARSAT package on commercial Landsat in the late years of the decade.

The other option is the one that Mr. McGunigal referred to as a dedicated SARSAT spacecraft.

Mr. SCHEUER. When will that be available?

Mr. BAILEY. The Landsat spacecraft will be launched in 1988, and I am not sure of the timeframe of the NASA SARSAT.

Mr. McGUNIGAL. The system could be developed in about 3 years. At the moment, we have no budget authority within NASA to proceed on that. This has all come up within the context of the last few weeks.

Mr. TORRICELLI. Do you mind, Mr. Chairman?

What we are losing is time as to when we would have had the polar orbiter operational, and if we were to use the Landsat program instead, add this onto Landsat? How many years are we going to be off the schedule, if at all?

Mr. BAILEY. I don't believe that we will be off at all, because we are launching a second polar in fiscal year 1985, the launching of NOAA-G to replace NOAA-E, which is the one that failed, so we will have a second polar in orbit in 1985, and expected lifetime of that spacecraft which carries to 1987 at minimum, barring no catastrophic failures as we experienced in NOAA-E.

Mr. TORRICELLI. This policy reversal comes as a surprise. Is this in the form of instructions we now have when we go to Leningrad, or still with communication within our own Government ourselves?

Mr. BAILEY. Sir, that is my instruction.

Mr. SCHEUER. Do we have some kind of unequivocal insurance that this two-polar-orbiting satellite, or its equivalent, will be funded in the fiscal year 1985 budget?

Mr. BAILEY. Sir, the second polar——

Mr. **Scheuer**. Excuse me, the 1986 budget?

Mr. **Bailey**. I don't know about that, sir. That is being developed at this time, and I did not have access to that.

Mr. **Scheuer**. You mean, is this commitment that you intend to make in Leningrad on October 5 going to be contingent—well, doesn't that commitment obligate both the Soviet Government and the American Government to provide the funding to get those birds up in the air?

Mr. **Bailey**. Yes, sir.

Mr. **Scheuer**. Do you view that as a commitment that binds our country in all honor to our international commitments?

Mr. **Bailey**. To provide two SARSAT equipped spacecraft, within the President's budget, sir.

Mr. **Scheuer**. Are you presenting us with an out? Well, let me put it this way: We have negotiated an agreement that is ready to be signed.

The ink and the pen are on the table, and it is going to require that both Governments provide the funding for the two SARSAT systems.

Is there any doubt that when you sign on October 5, that our Government intends to live up to that commitment to provide that funding?

Mr. **Bailey**. No, sir, I don't believe so.

Mr. **Lewis**. Mr. Chairman, are you giving us any indication that when the polar-orbiting goes up in November, the SARSAT equipment attached will be part of the two-SARSAT system, or are we agreeing to put up individual SARSAT orbiters?

Mr. **Bailey**. The one that we launch in November will be part of the two-spacecraft system, and the one that we launch next year will be the second part of it.

Mr. **Lewis**. OK. Are we talking about using specifically only polar orbiters or are you going to look down the road in 1988 to using a Landsat as well, and continue that as one of the orbiters?

Mr. **Bailey**. Yes, sir.

Mr. **Lewis**. Do you feel that the signatures in Leningrad at the negotiation table will bind the United States to two SARSAT orbiters?

Mr. **Bailey**. Yes, sir.

Mr. **Lewis**. Amazing. I thought we had to come here and try to convince you to do this, and now I find out that you are willing, ready, and able.

Mr. **Scheuer**. Well, I think we are all taken aback, and I think we are all very pleased and I am absolutely delighted.

Mr. **Torricelli**. We need new capabilities here to keep track of administration policy. If they could get these censored so we could back the day-by-day decisions, that is a technology that would impress me.

Mr. **Scheuer**. They have made the technology that has enabled them to receive our repeated signals, and for that, we ought to be thankful.

On a completely bipartisan basis on the Senate side, you will find this appreciation in change in policy that we find here.

Mr. Bailey, would a dedicated SARSAT have the same, or greater, or less capability than a second polar-orbiting satellite?

What is the difference? If we have a little money by putting up a dedicated SARSAT, as against a second polar-orbiting satellite, what do we save, and is there a difference on a cost-benefit basis?

What are the benefits from doing that in terms of savings? What are the costs in terms of lost services, if any?

Mr. **Bailey**. The difference between the spacecraft, of course, would be that dedicated SARSAT spacecraft would have only one function, whereas the polar orbiter has the meteorological and atmospheric functions with it.

Mr. **Scheuer**. You want to elaborate a little?

Mr. **Bailey**. The weather satellite would be providing atmospheric soundings, imaging of the cloud data used in making the forecasts for the National Weather Service.

Mr. **Scheuer**. Can you quantify the value of that?

Mr. **Bailey**. No, sir, I can't at this time.

Mr. **Scheuer**. Go ahead. What else do we lose if we just put up the dedicated SARSAT?

Mr. **Bailey**. Also onboard the polar orbiter weather satellite is the stratospheric sounding unit, advanced microwave sounder, the ARGOS data system.

That is about all the other instruments we have onboard.

Mr. **Scheuer**. We would lose the backup capability, would we not? That would reduce the risk of interruptions in the service for the weather satellite?

Mr. **Bailey**. Yes, sir.

Mr. **Scheuer**. If our single orbiting satellite goes out, we lose the benefit of our weather satellite for 1½ years, 2 years, without a backup?

Mr. **Bailey**. That is a reasonable assumption.

Mr. **Scheuer**. Would you put a cost factor on that?

Mr. **Bailey**. No, sir.

Mr. **Scheuer**. We would also lose the increased data that we would get, not only the backup for our existing Weather Service, but the increased data that we get.

You want to go down to Florida to Mr. Lewis' district and have a hearing with his citrus growers, the early storm warning, people who benefited from our hurricane forecast.

You might find the improved data that our weather forecasters have is of inestimable value in terms of saving lives, the increased environmental data we collect, river stages, waves, currents, increased backup for our geostationary weather satellite system, which recently failed.

And how about the benefit that over 120 developing world countries enjoyed from continuous, and systematic, and reliable weather forecasts from us that they use in knowing when to plant, when to harvest, when to irrigate, when to use their pesticides?

How about the value of being able to assure the continuity of that desperately needed information to 120 Third World countries, would you put a financial value on that, or an international public relations value on the continuity of that information?

Mr. **Bailey**. I believe it is immeasurable.

Mr. **Scheuer**. You said it. It came out of your mouth, not mine, and these are the benefits from having a second polar orbiter system rather than the SARSAT, right?

Mr. Bailey. Yes, sir.

Mr. Scheuer. Could you quantify what the saving would be from having a dedicated SARSAT rather than a two-polar-orbiting system? What are we saving in dollar terms for giving up this whole litany of benefits that we can pretty much agree on?

What is the difference in costs between these two systems, the dedicated SARSAT and the weather satellites?

Mr. Bailey. I am not sure what the costs of the dedicated system would be, but the weather satellite is in the neighborhood of $100 million per copy.

Mr. Scheuer. If you have made the decision to go from A to B, to go from the weather satellite to the dedicated SARSAT and you are giving up inestimable advantages, you must be doing this on some kind of a cost-benefit criteria and you must know what we are saving.

What are we saving?

Mr. Bailey. I don't have those figures, sir.

Mr. Scheuer. Who has them? Anybody have them? Is there anybody from OMB present? Anybody in the room have them? Could it be that it is the inability to document the savings and the clear ability to delineate all of the advantages of the bipolar system that has convinced us that you shouldn't use that out?

How would you propose to defend your decision to go the alternate route of the dedicated SARSAT, to give up all those benefits as against an ill-designed, in fact, nondefined saving?

How would you satisfy yourself? How would you satisfy this to administration policymakers who must be using some kind of cost-benefit analyses in making a decision of this kind with the clear benefits to be achieved from the bipolar system? They can't be giving up all those benefits for nothing.

They must have in mind some extraordinary saving. What is it? How do they figure it?

Mr. Bailey. According to Mr. Stockman's figures, $300 million saved, is quite a bit higher than the actual number would be. It depends upon the scenario as to how they would be employed as single polar versus two polar.

Single polar would be launched on 18-month center points; whereas, the second polar would be launched as needed, so that we would take advantage of success as opposed to not taking advantage of success with a single, so it is very difficult to tell what the savings would be, if any, in a single versus two.

If you look at just a flat scenario, yes, there is a fair savings, but I am not sure that this would be—that the total number that OMB has stated.

Mr. Torricelli. Mr. Chairman, could you yield for a moment?

Mr. Scheuer. I just yielded to Tom.

Mr. Lewis. There was a question whether or not $300 million was correct or not.

Mr. Bailey. Yes, sir.

Mr. Lewis. Are you saying Mr. Stockman's numbers may be wrong?

Mr. Bailey. Those were predicated on a fixed scenario. That was an assumption that we had——

Mr. Lewis. What does that mean?

Mr. **Bailey** [continuing]. For launching the two-polar spacecraft, which did not take into consideration success of—a greater success than what we have experienced. In other words, we have seen the lifetime of the spacecraft longer than the 2 years that we are estimating for a two-polar system, so any success at all would, of course, would negate the difference between savings of one versus two.

Mr. **Lewis**. I guess I am curious. From what you just said, why someone would hang a number like that out and say this is what we are going to save when you don't really know whether you are going to save that or not?

Mr. **Bailey**. It was a theoretical saving.

Mr. **Lewis**. I wish the deficit was theoretical.

Thank you.

Mr. **Torricelli**. Sir, if you will permit me, let me suggest what I think is going on here. I think it has become clear that Mr. Stockman made a serious error in judgment, in going in conflict with the U.S. obligation internationally to put a second polar orbiter into effect, that it was dangerous and irresponsible for American maritime, American pilots, and you were faced with an international embarrassment with not living up to our obligations.

And so, in scurrying around the last 24, 48 hours, they would not give us the benefit of admitting they made a mistake, so they came up with an alternate plan, which now involves other problems, weather forecasting, the safety of people who live along our shores, for the agricultural industry, and others, so speedily adjustment is made to come up with new proposals that are based on no hard numbers, with clearly no thinking being done.

And let me say to you, as one who would like to share the pride of people going to the represent the United States to the Soviet Union, based on the numbers I have heard today, and the amount of thinking going into this plan, we are not prepared to meet the Russians.

And I hope the message you will take back at least from this Member of Congress is, I am glad that your sense of humanity has been renewed, and you are agreeing that there is a need for this rescue service, that it makes sense.

But there is no need to take false partisan or administration pride in admitting a mistake was made. We are prepared to hear a misjudgment was made in canceling the program.

But there is no need now to apply Band-Aids to it. It hasn't been thought out and there are no hard numbers to rationalize that this makes any sense, and I hope, I hope we can leave here with an understanding that you will go back and the administration will once again look at this, and give it some serious thought, because it deserves a lot more thinking than it appears to me has been given it today.

I say that in all respect to you, and I know you are here in a difficult set of circumstances. You remind me of those pictures of those boats we say, upside down, even though you are calmly behind the table.

Mr. **Scheuer**. I think we have made a lot of progress here this morning. We will take our progress in incremental steps, and we will be very happy for each incremental step. We have solved the problem of going to Leningrad and signing up on the dotted line and signing up in good faith with a commitment that we are going to fund in good faith our obligation to the Soviet Union of having a full bi-polar system there, or its equivalent.

Now, the question is, we would be in good faith with the Soviet Union to have that dedicated satellite as our contribution, but would we be in good faith with ourselves? Would we be in good faith with the 120 developing nations who rely on the continuity of our Weather Service—our own television, agricultural industry, newspaper institutions depend urgently on the integrity and the accuracy of our weather forecasting services—on the continuity, availability, all the other things we mentioned before when we went through, a little bit painfully, this list of things we would be giving up.

Now, we know that we intend to continue in good faith with the Russians. Are we continuing in good faith with the American public, and ourselves?

We are making incremental progress, and I hope to make another step in incremental progress, and what I would like to do is ask you to go back and talk to your colleagues in the executive branch and see if they cannot give us a more effective analysis of what the savings actually would be to go from a bipolar system to a dedicated satellite as the second element, and let's see on a cost-benefit basis whether the costs that we would be paying in services that we would be giving up, services to the American agricultural industry, to our newspapers, television stations, the public that rely on weather information, to our foreign policy of interrupting the integrity of the Weather Service we are giving to the 120 nations overseas, let's see if we cannot do some kind of cost-benefit factoring, as to what the costs are, what the detriment is, what we are giving up, and see whether the flame is worth the candle.

I have the feeling that we may decide to go ahead with a bipolar system, that the losses that we would be incurring and the sacrifices we would be making to our own people and to those developing world nations would not be worth the candle, would not be worth a hard-nosed, fine-tuned calculation of savings.

And we would ask you to go back to OMB, and get their computers working and see if we can do a better analysis of what the potential savings are, and what the potential downside giving up of services would be than you have been able to give us admittedly, and I want to thank you for your candor and thank you for telling us honestly and forthrightly what you know and what you really are not able to tell us in terms of accurate cost estimates.

You have been very candid and forthright, and we will schedule another hearing, and we hope there will be a lot of pencil-pushing among you and your colleagues until that time.

I am sorry we interrupted this panel. You took us a little aback when you told us in the last paragraph of your testimony that you were going to go ahead and sign that document, and I want to apologize to the other panel members.

Mr. Mosemann, and then Colonel Eskin, and then we will have questions for the entire panel.

Mr. MOSEMANN. Thank you, Mr. Chairman. Colonel Heeter and I are here together, and will have one statement, and will both respond to the questions.

Colonel Heeter is the Commander of our Aerospace Rescue and Recovery Service, which has the responsibility for operating the Inland Search and Rescue Coordination Center at Scott Air Force Base in Illinois.

Annually, we respond to 10,000 emergency incidents, with about 2200 search-and-rescue missions, saving somewhere between 6 and 700 lives.

In addition, they are responsible for operating the U.S. Mission Control Center for the SARSAT satellite and that, of course, is the reason that we are here today.

You have heard that through the SARSAT system, we have saved 134 U.S. lives. In addition, I would just like to mention that 10 of those lives were backpackers and hikers, so there are more than just the maritime and aviation interests involved in these rescues.

All of the United States SARSAT saves have been directed by and managed through the combined rescue coordination and SARSAT Mission Control Center at Scott. A more detailed picture of our specific involvement has been submitted for the record.

The Rescue Coordination Center manages the search function by direct liaison with each State emergency, and in many cases, local county emergency response agencies, various volunteer organizations, such as the Ski Patrol and the Rescue Dog Services, and the Civil Air Patrol.

When a maritime search is called for, the Rescue Coordination Center coordinates directly with the appropriate Coast Guard district. This direct liaison has been established because of the time-critical nature of search-and-rescue.

The Air Force's role in the upcoming Leningrad meeting is directly related to our responsibility in operating this Mission Control Center.

With the overall project about to transition from the demonstration and evaluation phase to operational phase, there are a number of detailed software and operating problems and procedures to be discussed with our Soviet counterparts, and that is our purpose in going there.

In summary, the Air Force responsibility for civil search-and-rescue is specified in the National Search-and-Rescue Plan, and is separate and distinct from our combat or military search-and-rescue function.

Civil search-and-rescue is purely a humanitarian effort which the Air Force does because we have the capability that has been developed in support of military operations.

The use of satellites to assist in this role has greatly enhanced our ability to save lives and at less cost.

The demonstration and evaluation phase to this point has reduced our search-and-rescue hours by almost 50 percent per mission. In other words, a typical search-and-rescue mission has required 16 to 18 flying hours.

That has been reduced to about 8 hours per mission. The monthly rate of satellite-aided rescue continues to increase as the system matures, and as more and more individuals, backpackers, begin to carry the search-and-rescue devices.

We are convinced that four polar-orbiting satellites directly affects our response time, and thus, the victims' chance of survival.

Thank you very much.

[The prepared statement of Mr. Mosemann follows:]

DEPARTMENT OF THE AIR FORCE

STATEMENT OF
MR LLOYD K. MOSEMANN II
DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE
(LOGISTICS AND COMMUNICATIONS)

BEFORE THE
SUBCOMMITTEE ON
NATURAL RESOURCES AGRICULTURE RESEARCH & ENVIRONMENT
UNITED STATES HOUSE OF REPRESENTATIVES

CONCERNING
SEARCH AND RESCUE SATELLITE (SARSAT)

SEPTEMBER 18, 1984

Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330

LLOYD K. MOSEMANN, II

Mr. Lloyd K. Mosemann, II is the deputy assistant secretary (logistics & communications), Office of the Assistant Secretary of the Air Force (Research, Development and Logistics). He is responsible for Air Force logistics planning, supply and maintenance management, international logistics, communications, transportation, civil aviation, and search and resuce.

Mr. Mosemann was born May 16, 1936 in Lancaster, Pa. He received a bachelor of arts degree in social sciences in 1957 and a master's degree in international relations in 1959 from the University of Chicago.

He began his government career at the Navy Electronics Supply Office, Great Lakes, Ill., in 1958. During 1962, as the first civilian employee of the Defense Electronics Supply Center at Dayton, Ohio, he participated in the planning for and establishment of that new agency with specific responsibility for the design of inventory management and requisition processing systems for Department of Defense management of electronic repair parts.

From 1963 to 1968, he was with the Bureau of Supplies and Accounts and its successor organization, the Naval Supply Systems Command headquarters in Washington, D.C. During most of this period, he was head of the Integrated/Retail Supply Support Branch and was instrumental in establishing Navy distribution and requirements policies and procedures for supplies obtained from other military services and government agencies, including Defense Supply Agency. He established the Navy's POSSE program to improve the accuracy and reliability of stock record keeping and the physical security and custody of materiel in store.

Prior to joining the staff of the secretary of the Air Force, Mr. Mosemann served for two years as deputy chief of the Logistics Support Analysis Staff in the Department of Defense Supply Agency. His responsibilities included conducting Department of Defense analyses of functional logistics area as directed by the assistant secretary of defense (installations and logistics).

In January 1971 Mr. Mosemann was appointed deputy for supply and maintenance in the Office of the Assistant Secretary of the Air Force (Research, Development and Logistics). He was appointed to his present position in 1974. Since that time Mr. Mosemann has fostered innovative management concepts across the spectra of logistics and communications management functional interests. In addition, he has given special emphasis to search and rescue, and security police programs.

(Current as of October 1983) OVER

He is a member of the Board of Advisors of the Society of Logistics Engineers (SOLE), is a member of the Executive Committee of the National Defense Transportation Association (NDTA), is a trustee of the National Association on Search and Rescue (NASAR) and is a past director of the Americen Defense Preparedness Association (ADPA). Within the Air Force he is a member of the Executive Resources Board and is a panel chairman of the Air Force Board for the Correction of Military Records.

Mr. Mosemann and his family, wife and children, reside in Oakton, Virginia.

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MOSIMAN

MR CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

I WELCOME THE OPPORTUNITY TO ADDRESS YOUR SUBCOMMITTEE AND DISCUSS THE SEARCH AND RESCUE SATELLITE AIDED TRACKING (SARSAT) PROJECT. WITH ME IS COLONEL OWEN A. HEETER, COMMANDER OF THE AEROSPACE RESCUE AND RECOVERY SERVICE.

I WILL FOCUS ON THE AIR FORCE INVOLVEMENT AND INTEREST IN THIS PROGRAM. BY WAY OF BACKGROUND, THE AIR FORCE RESPONSIBILITY FOR CIVIL SEARCH AND RESCUE (SAR) IS SPELLED OUT IN THE NATIONAL SEARCH AND RESCUE PLAN OF 1981. A COPY OF THAT PLAN IS INCLUDED AS AN ATTACHMENT TO THIS TESTIMONY. THAT PLAN DESIGNATES THE AIR FORCE AS THE REGIONAL SAR COORDINATOR FOR THE INLAND AREA OF THE CONTINENTAL UNITED STATES AND PARTS OF ALASKA. TO CARRY OUT THIS RESPONSIBILITY, THE AIR FORCE OPERATES THE RESCUE COORDINATION CENTER (RCC) AT SCOTT AIR FORCE BASE, ILLINOIS.

OUR PARTNERSHIP WITH NASA, NOAA AND THE DOT IN THE SARSAT PROJECT WAS FORMALIZED IN A 1977 INTERAGENCY AGREEMENT. THE AIR FORCE AGREED TO OPERATE AND MAINTAIN ONE GROUND STATION, CALLED A LOCAL USER TERMINAL (LUT), AND THE MISSION CONTROL CENTER (MCC). BOTH OF THESE FACILITIES ARE AT SCOTT AFB. THE COAST GUARD OPERATES THE OTHER TWO U.S. LUT'S - ONE AT KODIAK, ALASKA AND ONE AT POINT REYES, CALIFORNIA.

SINCE THE DEMONSTRATION AND EVALUATION PHASE BEGAN ON FEBRUARY 1ST, 1983, THE COMBINED COSPAS/SARSAT SYSTEM HAS BEEN CREDITED WITH SAVING 278 LIVES - 134 OF THOSE HAVE BEEN IN THE UNITED STATES.

ALL OF THESE U.S. SAVES HAVE BEEN DIRECTED BY AND MANAGED THROUGH THE COMBINED AIR FORCE RESCUE COORDINATION CENTER AND MISSION CONTROL CENTER AT SCOTT AFB. A MORE DETAILED PICTURE OF SPECIFIC AIR FORCE ENVOLVEMENT IS ATTACHED. THE RCC MANAGES THE SEARCH FUNCTION BY DIRECT LIAISON WITH EACH STATE EMERGENCY RESPONSE AGENCY AND THE CIVIL AIR PATROL. WHEN A MARITIME SEARCH IS CALLED FOR, THE RCC COORDINATES DIRECTLY WITH THE APPROPRIATE COAST GUARD DISTRICT. THIS DIRECT LIAISON HAS BEEN ESTABLISHED BECAUSE OF THE TIME-CRITICAL NATURE OF SEARCH AND RESCUE.

THE AIR FORCE'S ROLE IN THE UPCOMING LENINGRAD MEETING IS DIRECTLY RELATED TO OUR RESPONSIBILITY TO OPERATE THE UNITED STATES MISSION CONTROL CENTER. WITH THE OVERALL PROJECT ABOUT TO TRANSITION FROM THE DEMONSTRATION AND EVALUATION PHASE TO THE OPERATIONAL PHASE, THE FUNCTIONS OF EACH MCC ARE VERY CRITICAL. THE AIR FORCE REPRESENTATIVES WILL MEET WITH THEIR COUNTERPARTS TO ANALYZE MCC OPERATIONS DURING THE D&E PHASE AND TO DEVELOP OPERATIONAL CONCEPTS, POLICIES AND PROCEDURES FOR THE FUTURE. USER REQUIREMENTS WILL BE COORDINATED AND VALIDATED. COMPUTER HARDWARE AND SOFTWARE PROBLEMS WILL BE IDENTIFIED, STUDIED, AND RESOLVED. A SERIES OF SPLINTER GROUP MEETINGS IS PLANNED TO ALLOW DETAILED LOOKS INTO EVERY ASPECT OF MCC OPERATIONS.

IN SUMMARY, THE AIR FORCE RESPONSIBILITY FOR CIVIL SEARCH AND RESCUE AS SPECIFIED IN THE NATIONAL SAR PLAN, IS SEPARATE AND DISTINCT FROM OUR COMBAT SEARCH AND RESCUE MISSION. CIVIL

SEARCH AND RESCUE IS PURELY A HUMANITARIAN EFFORT WHICH THE AIR FORCE DOES BECAUSE OF THE SEARCH AND RESCUE CAPABILITY WE HAVE DEVELOPED FOR MILITARY OPERATIONS. THE USE OF SATELLITES TO ASSIST IN THIS ROLE HAS GREATLY ENHANCED OUR ABILITY TO SAVE LIVES. THE DEMONSTRATION AND EVALUATION PHASE OF COSPAS/SARSAT HAS BEEN A TOTAL SUCCESS FROM AN AIR FORCE VIEWPOINT. THE MONTHLY RATE OF SATELLITE-AIDED RESCUES CONTINUES TO INCREASE AS THE SYSTEM MATURES. THE AIR FORCE IS CONVINCED THAT THE MOST RESPONSIVE CONFIGURATION IS A CONSTELLATION OF FOUR POLAR-ORBITING SATELLITES. THE NUMBER OF SATELLITES DIRECTLY AFFECTS OUR RESPONSE TIME AND THUS THE VICTIM'S CHANCE OF SURVIVAL.

THIS CONCLUDES MY FORMAL STATEMENT, MR CHAIRMAN. I WILL BE PLEASED TO ADDRESS ANY QUESTIONS THE SUBCOMMITTEE MIGHT HAVE.

NATIONAL SEARCH AND RESCUE PLAN—1981

1. POLICY

It is the policy of the signatory agencies to provide a national plan for the coordination of search and rescue services to meet domestic needs and international commitments.

2. PURPOSE

The purpose of this plan is to continue by interagency agreement, the effective utilization of all available facilities in all types of search and rescue missions. The National Search and Rescue Plan—1969 is superseded by this agreement.

3. DEFINITION

Search and Rescue (SAR) is defined as the employment of available personnel and facilities in rendering aid to persons and property in distress or potential distress.

4. OBJECTIVE

To provide a National Search and Rescue Plan which will integrate into a cooperative network available U.S. Search and Rescue facilities which will be coordinated in any one area by a single federal agency in order to afford greater protection of life and property and insure greater efficiency and economy. It is not the intent for the plan to contravene or conflict in any way with search and rescue responsibilities agreed to by the contracting states of the Convention on International Civil Aviation, the International Maritime SAR Convention or other international instruments to which the United States may become a party.

5. SCOPE

The provisions of this National Search and Rescue Plan are applicable to all Federal agencies signatory hereto. Established State search and rescue organizations may wish to retain their established SAR responsibilities within their boundaries which result from activities which are primarily local or intrastate in character. In such cases, appropriate agreements will be made between the regional SAR coordinator and the respective state organization to accomplish this end.

6. FACILITIES AND SUPPORT ACTIVITIES OF PARTICIPATING AGENCIES

(a) The agencies of the Department of Transportation carry out the Department's broad responsibilities in the field of transportation safety. The U.S. Coast Guard has statutory responsibility for developing, establishing, maintaining and operating rescue facilities for the promotion of safety on, under and over the high seas and waters subject to the jurisdiction of the United States. The Coast Guard also has responsibility for safety inspection of most merchant vessels and for investigation of marine casualties. The Federal Aviation Administration has air traffic control and flight service facilities available to assist in search and rescue operations. The Maritime Administration operates a fleet of merchant ships for Government use and is responsible for promoting a safe Merchant Marine.

(b) Department of Defense components provide search and rescue facilities in support of their own operations; these facilities are used to meet civil needs on a basis of noninterference with military missions.

(c) The Department of Commerce participates in or supports SAR operations through the National Oceanic and Atmospheric Administration (NOAA) which provides nautical and aeronautical charting, information on tides and tidal currents, and marine environmental forecasts and warnings for the high seas and for coastal and inland waterways.

(d) The Federal Communications Commission promulgates rules and regulations for the non-government use of wire and radio facilities for the purpose of promoting safety of life and property, and through its long-range direction finder network cooperates in SAR operations.

(e) The National Aeronautics and Space Administration (NASA) has aircraft, spacecraft and world-wide tracking, data acquisition and communications networks which could be used to assist in SAR operations. NASA will support SAR objectives through research and development or application of aerospace technology to search, rescue, survival, and recovery related equipment such as location tracking systems, transmitters and antennas capable of locating aircraft, ships, spacecraft, or individuals in distress or potential distress.

(f) Land managing components of the Department of the Interior (DOI) provide search and rescue service on lands and waters administered by the DOI and may assist in operations on adjacent jurisdictions. The degree of responsibility assumed in each DOI field area depends upon the legislative and jurisdictional character of the bureau and field area. Thus, response may range from support of law enforcement authorities or other locally organized units to primary SAR coordination and execution. Similarly, components assume varying degrees of responsibility for preventative measures designed to afford greater protection to the visiting public.

(g) The Federal Emergency Management Agency (FEMA) is responsible for establishing federal policies for, and coordination of, all civil defense and civil emergency planning, management, mitigation and assistance functions of executive agencies. Among its principal functions and activities FEMA assists state and local governments in the coordination of civil emergency preparedness, response and civil recovery activities; and develops and operates telecommunications, warning and electronics systems to support functions of civil emergency assistance. Within this framework FEMA will provide support to SAR activities.

(h) Certain States, local governments, and civil organizations have organized facilities which contribute to the effectiveness of the over-all SAR network.

7. THE PLAN

a. Coordination of Agencies

The Interagency Committee on Search and Rescue will, consistent with applicable laws and executive orders, coordinate the implementation of the plan. It will review search and rescue matters affecting more than one agency, including recommendations presented by participating agencies for revision or amendment of the plan and will make appropriate recommendations. It will endeavor to encourage federal, state, local and private agencies to develop equipment and procedures which will enhance the national SAR capability, and will promote the coordinated development of all national SAR resources.

b. Definition of SAR Regions

SAR Regions are defined as follows:

(1) Inland region. The inland areas of Continental United States, except the inland area of Alaska and waters under the jurisdiction of the United States.

(2) Maritime region. The waters subject to the jurisdiction of the United States; the state of Hawaii; the portions of the state of Alaska south of 58 degrees north latitude and east of 141 degrees west longitude; the high seas and those commonwealths, territories and possessions of the United States lying within the area designated as the "Maritime Region" on the attached chart.

(3) Overseas regions. Overseas unified command areas, and the inland area of Alaska, which are not included within the Inland region or the Maritime region as defined above.

c. Designation of Regional SAR Coordinators

The below named Federal agencies are separately designated regional SAR coordinators for the SAR regions indicated:

The Inland Region. The Air Force.

The Maritime Region. The Coast Guard.

The Overseas Regions. The overseas unified command or Alaskan Air Command in each Overseas region as defined above.

d. Organization of Basic SAR Network

(1) The regional SAR coordinator will, consistent with applicable laws and executive orders, undertake to organize existing agencies and their facilities through suitable agreements in a basic network for rendering assistance to military and nonmilitary persons and property in distress or potential distress and to carry out the U.S. SAR obligations under the Convention on International Civil Aviation and other international instruments to which the United States is a party.

(2) Agreements between a regional SAR coordinator and the Army, Navy, Air Force, JCS Unified Command, or Coast Guard will provide for the fullest practicable utilization of the facilities of such agencies in regional SAR missions under the regional SAR coordinator, consistent with statutory responsibilities and authorities and assigned functions of such agencies, and will provide that such agencies delegate to the regional SAR coordinator authority for the coordination of their facilities committed to such missions.

(3) Agreements between the regional SAR coordinator and civil agencies of the Federal Government will provide for the fullest practicable cooperation of such agencies in regional SAR missions under the regional SAR coordinator, consistent with the statutory responsibilities and authorities and assigned functions of such agencies, and will provide for such coordination by the regional SAR coordinator of their facilities committed to such missions as may be necessary and practicable.

(4) Agreements between the regional SAR coordinator and State, local, and private agencies will provide for the fullest practicable cooperation of such agencies in SAR missions under the regional SAR coordinator, consistent with the willingness and ability of such agencies to engage in SAR, and will provide for such coordination by the regional SAR coordinator of their facilities committed to such missions as may be necessary and practicable.

(5) The regional SAR coordinator will maintain files of such agreements and lists of such agencies and of the location of their SAR facilities.

(6) The regional SAR coordinator may subdivide the region for the advantageous execution of this plan and will designate an appropriate officer of his service or, by mutual agreement, an officer of any other participating agency, to be SAR coordinator in the region or each subdivision thereof. U.S. SAR region or subdivision boundaries should coincide with the boundaries of any pertinent international SAR area boundaries; where technical or operational requirements make this impossible or impracticable, appropriate amendments to the international boundaries should be proposed to the appropriate international organization, through the proper channels, by the agency primarily concerned.

(7) It is not intended that regional SAR coordinators be responsible for SAR in foreign territory or areas of the high seas which have not been accepted by the United States for international SAR responsibility. However, it is intended that the regional SAR coordinator or his designated subordinate act as the appropriate U.S. official for overseeing the coordination of all U.S. SAR interests in such territory or areas which lie within his region.

e. Conduct of SAR Operations

(1) The regional SAR coordinator will develop plans and procedures for the effective utilization of all available SAR facilities in the region or subdivisions thereof. The regional SAR coordinator will develop plans and procedures to carry out the objectives of this plan in the event military forces are withdrawn from the region because of a military emergency or a change in the military missions.

(2) The regional SAR coordinator may be assisted by, or may request assistance from, interested Federal agencies having SAR capabilities within the region.

(3) Rescue Coordination Centers having international responsibilities will conform to the SAR procedures which have been established as standards or requirements by international conventions to which the United States is a party unless differences or reservations have been filed by the United States.

(4) The SAR coordinator in a region or subdivision thereof, through an appropriate Rescue Coordination Center, will coordinate and as appropriate, direct the operations of SAR facilities committed to any SAR mission therein, consistent with the provisions of sub-paragraphs d (2), (3), and (4) above, and will otherwise act to implement the plans of the regional SAR coordinator.

(5) The SAR coordinator may delegate "on-scene" coordination and direction to any appropriate unit participating in a particular incident under his cognizance.

(6) SAR coordinators of adjacent regional subdivisions of the same or different SAR regions will maintain liaison with and will support each other in SAR operations as necessary and practicable. Liaison and cooperation in SAR will be afforded to the SAR forces of other nations as necessary and feasible.

f. General Provisions

(1) The regional SAR coordinator will encourage the development and maintenance of proficiency in SAR techniques and procedures by participating agencies and will assist therein as appropriate and practicable.

(2) The regional SAR coordinator will encourage the continued development of State and local SAR facilities as appropriate.

(3) Boundaries of SAR regions established by or under this plan are not to be construed as barriers to effective SAR operations or to the exercise of initiative and judgment.

(4) No provision of this plan or any supporting plan is to be construed as an obstruction to prompt and effective action by any agency or individual to relieve distress whenever and wherever found.

(5) No provisions of this plan or any supporting plan are to be construed in such a way as to contravene the responsibilities and authorities of any participating agency as defined by statutes, executive orders or international agreements, or the established responsibilities of other agencies and organizations which regularly assist persons and property in distress resulting from activities of a local nature.

(6) This plan does not encompass SAR for such activities as: salvage operations, military undersea rescue, special or unusual operations of the Armed Forces, rescue of persons or property in outer space, emergencies affecting the public welfare occurring as a result of enemy attack, insurrections, civil disturbances, earthquake, fire, flood, or other public disasters or equivalent emergencies which endanger life and property or disrupt the usual process of government. However, the SAR organization and its facilities should be utilized to the maximum extent feasible in connection with the above activities.

(7) Although Federal leadership in the search and rescue field may generally be recognized, the Federal Government holds no mandate to compel state, local, or private agencies to conform to a national search and rescue plan. The desires of state and local agencies to direct and control their own facilities in SAR missions resulting from the intra-State or local activities within their boundaries must be respected and insured. Cooperation, therefore, must be sought through liaison and agreements.

Signature: Andrew L. Lewis, Jr.
Title: Secretary of Transportation
Date: September 11, 1981
For the Department of Transportation

Signature: Verne Orr
Title: Secretary of the Air Force
Date: June 18, 1981
For the Department of Defense

Signature: Malcom Baldrige
Title: Secretary of Commerce
Date: May 1, 1981
For the Department of Commerce

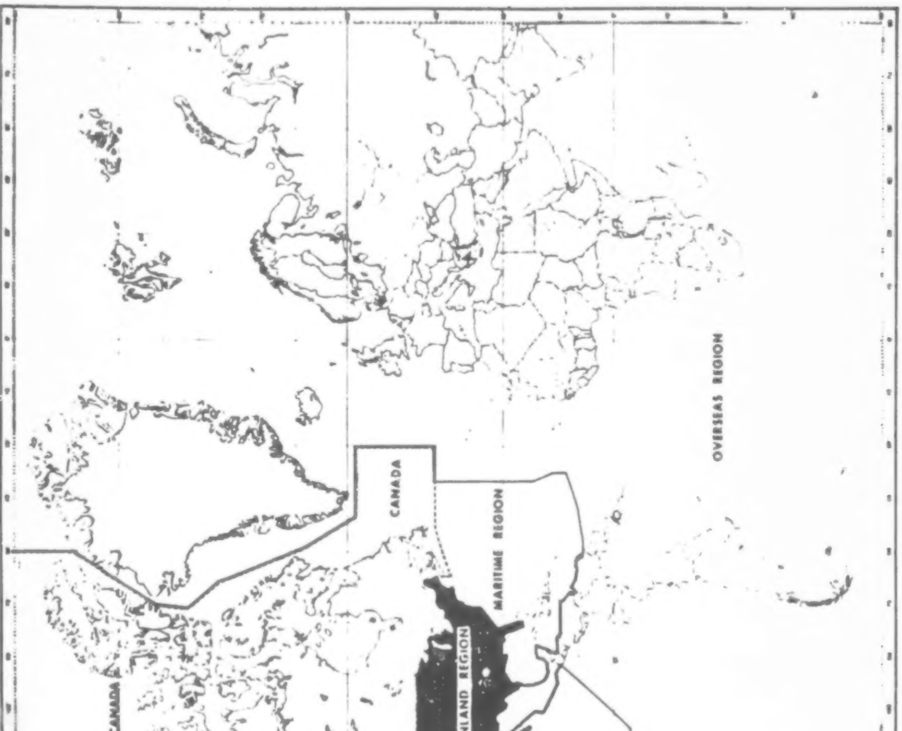
Signature: James G. Watt
Title: Secretary of Interior
Date: May 14, 1981
For the Department of the Interior

Signature: A. M. Lovelace
Title: Acting Administrator
Date: May 4, 1981
For the National Aeronautics and Space Administration

Signature: R. E. Lee
Title: Chairman
Date: May 4, 1981
For the Federal Communications Commission

Signature: L. O. Giuffrida
Title: Director
Date: July 14, 1981
For the Federal Emergency Management Agency

CHART - NATIONAL SEARCH AND RESCUE PLAN


CANADA
MARITIME REGION
OVERSEAS REGION
CANADA
INLAND REGION
CANADA
MARITIME REGION
CANADA
MARITIME REGION
OVERSEAS REGION
OVERSEAS REGION

AIR FORCE PARTICIPATION IN COSPAS/SARSAT RESCUES

Overall COSPAS/SARSAT statistics are summarized in the addendum to the NASA testimony. The 278 persons rescued represents 104 total incidents.

Of those 104 incidents, 57 were in the United States or in and around its territorial waters. Focusing on the inland area of the continental U.S. and Alaska, there were 32 incidents in which 61 persons were rescued.

Since the Air Force operates the U.S. Mission Control Center (MCC), it was directly involved in all of the U.S. rescues (both inland and maritime).

With respect to the 32 incidents in the inland region, the following agencies responded. The totals are much more than 32 because there were multiple responses to many of the incidents.

Civil Air Patrol	19
Active or Reserve USAF	15
State and Local Gov't Teams	6
U.S. Army	2
U.S. Park Service	1
Private Corporation	1
U.S. Coast Guard	2

These responses were directly responsible for saving the 61 lives mentioned above. Our dealing with state and local teams include state police, sheriff's departments, volunteer search dog teams, and other private volunteer organizations.

This, however, is a very incomplete picture of the operation of the Air Force Rescue Coordination Center. The following table illustrates the total picture:

	TOTAL INCIDENTS	SAR MISSIONS	SAVES
1982	6538	1752	694
1983	10364	2271	654
1984 (thru Sep 16th)	6326	1718	396

Mr. SCHEUER. Colonel Heeter?

Colonel HEETER. Sir, I do not have a written statement, per se. Speaking from the humanitarian aspect of this program, the SARSAT Program has done three specific things which we think is pretty great. It has reduced the exposure of our search crews to the natural hazardous conditions under which they operate.

If we can eliminate their time out in the search area, then we limit their hazards involved. It has reduced our search-and-rescue time, as just pointed out, and that is a cost saving in itself up to millions of dollars a year.

Mr. SCHEUER. Can you give us an exact figure?

Colonel HEETER. For instance, 8 hours of flying time, if it is governmental-type aircraft flying, you are talking about $1500 per hour, average on an HC-130 and HH-53, that very rapidly adds up into quite a bit of time per mission.

Mr. SCHEUER. Multiply that by the number of missions flown annually, sir.

Colonel HEETER. We fly over 18,000 hours annually looking for aircraft and of course, the Civil Air Patrol flies the majority of those flying hours, and that is a reduced cost. Of course, we average that out at $50 an hour for the Civil Air Patrol.

Mr. SCHEUER. Talking of your figure, 18,000, you are talking about $27 million saved just there, if you take $1,500 an hour saving, times 18,000.

Colonel HEETER. True, not quite that, because we use a Civil Air Patrol who we reimburse for their costs, but still a savings of $20 million we are looking at.

The biggest thing that the satellite does, and I want to get this point across, it provides improved chances of survival for those people out there who are injured.

When you think, out of every person that is injured in an aircraft accident, if we can get to him in 2 hours, his chances of survival are 85 percent. If that waits until 8 hours, that lowers to 50 to 55 percent.

Only 20 percent of those people survive beyond 24 hours if they are injured. If they are not injured, 50 percent of the uninjured survivors of aircraft accidents die within 3 days, so we got to get out there to them quick, and SARSAT does a beautiful job of doing that.

Mr. SCHEUER. It also reduces the period of jeopardy and the number of your aircraft personnel who are exposed to hazardous flying duty in the course of carrying out these rescues courageously as they do.

Colonel HEETER. Yes, sir.

Mr. SCHEUER. Now, we will hear from Otho Eskin, Director of the Office of Advanced Technology of the U.S. State Department.

Mr. ESKIN. In general terms, the Department of State has been a very strong supporter of the SARSAT-COSPAS Program. We think we obtain, as a nation, a great many foreign policy benefits from the program.

First of all, the humanitarian benefits, but also it has given us further opportunity for cooperation in the space field with other countries, not the least of which is the Soviet Union. We consider that a benefit to us.

We are very pleased to hear this morning that we will be able to go ahead and sign the SARSAT-COSPAS agreement in Leningrad, and we consider that will lead to increased cooperation with other countries in this area.

In your letter of invitation, you had asked me two specific questions which are not addressed in my prepared testimony.

You had asked about the existing United States-Soviet satellite cooperative agreements. Very briefly, we had agreements in science and technology in space which would have lapsed due to actions by the Soviet Government in Afghanistan and in Poland.

We have no formal agreements now in existence. We have some cooperative arrangements of a multinational nature with the United States and the Soviet Union both participate.

INMAR/SAT would be one cooperative effort in dealing with the Haley's Comet investigation. We also have an agency-level bilateral agreement between NASA and the Soviet Ministry of Health and Bio/Sat rescue, and COMSAT is the only other agreement.

You asked about the State Department's role in the program. We have no operational role in the program itself. We have, of course, responsibility for reviewing the agreement.

The SARSAT-COSPAS agreement referred to earlier in the circular 175 procedure, which the Department of State approved, we strongly supported the agreement. We have followed the events in the last few weeks when the question of two polar orbiters came in doubt, and some of the bases on which the agreement was originally negotiated was cast in doubt.

We are gratified that it appears we are now in a position to go ahead and sign the agreement in October.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Eskin follows:]

STATEMENT OF OTHO E. ESKIN
DIRECTOR, OFFICE OF ADVANCED TECHNOLOGY
DEPARTMENT OF STATE
BEFORE THE HOUSE SUBCOMMITTEE
ON NATURAL RESOURCES,
AGRICULTURE RESEARCH AND ENVIRONMENT

SEPTEMBER 18, 1984

MR. CHAIRMAN,

THE DEPARTMENT OF STATE WELCOMES THE OPPORTUNITY TO PROVIDE ITS VIEWS TO THE SUBCOMMITTEE TODAY ON THE COSPAS-SARSAT PROGRAM. THIS IS AN IMPORTANT AND TIMELY SUBJECT.

THE DEPARTMENT OF STATE HAS STRONGLY SUPPORTED COOPERATION WITH OTHER NATIONS, INCLUDING THE SOVIET UNION, IN THE DEVELOPMENT OF SATELLITE-AIDED SEARCH AND RESCUE SYSTEMS. OUR INTEREST IN COOPERATION WITH THE SOVIET UNION IN THIS AREA WAS INITIALLY REFLECTED IN THE AGREEMENT BETWEEN THE UNITED STATES OF AMERICA AND THE UNION OF SOVIET SOCIALIST REPUBLICS, SIGNED IN GENEVA ON MAY 18, 1977, BY SECRETARY VANCE. THAT AGREEMENT PROVIDED FOR COOPERATION BETWEEN NASA AND ITS COUNTERPART IN THE SOVIET UNION IN A NUMBER OF FIELDS, INCLUDING SATELLITE SEARCH AND RESCUE SYSTEMS. THE BILATERAL AGREEMENT WAS ALLOWED TO LAPSE IN 1982 BECAUSE OF SOVIET COMPLICITY IN THE IMPOSITION OF MARTIAL LAWS IN POLAND.

THE DISCUSSIONS WHICH TOOK PLACE AS A RESULT OF THAT AGREEMENT HOWEVER HAD EARLIER EVOLVED INTO A MULTILATERAL FRAMEWORK, INVOLVING CANADA AND FRANCE AS WELL AS THE USSR, AND PRODUCED THE COSPAS-SARSAT PROJECT IN 1979.

The initial phases of the COSPAS-SARSAT project were conducted under a Memorandum of Understanding, signed on November 23, 1979, by NASA, the Canadian Department of Communications, the Centre National d'Etudes Spatiales (CNES) of France, and the Soviet Ministry of Merchant Marine. The Definition and Development Phase of the project involved effecting interoperability between the SARSAT system and the COSPAS system, utilizing certain, common radio frequencies (121.5 mhz and the 406.0 - 406.1 mhz band). The Demonstration and Evaluation Phase established the effectiveness of using low-altitude, polar-orbitting satellites equipped with search and rescue instruments in locating aircraft and maritime vessels in distress.

As a result of the considerable success of the COSPAS-SARSAT project during its experimental phases, the parties to the 1979 MOU decided to proceed with the operational phase of the program; that is, to continue to operate the system through 1990 and to consider whether other institutional arrangements beyond that date were appropriate to give effect to a global search and rescue satellite system and to encourage broad international use and acceptance of that system.

A Memorandum of Understanding defining a cooperative project among the Soviet Ministry of Merchant Marine, NOAA, Canadian

AND FRENCH AGENCIES TO OPERATE A SATELLITE-AIDED SEARCH AND RESCUE SYSTEM HAS BEEN NEGOTIATED AND WAS SCHEDULED TO BE SIGNED AT A MEETING IN LENINGRAD IN EARLY OCTOBER.

AS ENVISAGED IN THE DRAFT MOU, THE U.S. CONTRIBUTION TO THE PROJECT INCLUDES SEARCH AND RESCUE INSTRUMENTATION DEVELOPED IN COOPERATION WITH CANADA AND FRANCE, ON BOARD A SERIES OF POLAR ORBITTING SATELLITES OPERATED BY THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, WITH TWO SUCH SPACECRAFT MAINTAINED IN ORBIT UNDER NORMAL CONDITIONS.

UNFORTUNATELY, ONE OF THE US SATELLITES - NOAA-8 - RECENTLY FAILED, REQUIRING A REVIEW AMONG THE INTERESTED U.S. TECHNICAL AGENCIES, TOGETHER WITH THE OFFICE OF MANAGEMENT AND BUDGET, OF THE OPTIONS AVAILABLE TO US, OPTIONS BY WHICH WE COULD CONTINUE TO PARTICIPATE IN THE COSPAS-SARSAT PROJECT DURING THE OPERATIONAL PHASE, WHILE FULFILLING THE EXPECTATIONS OF OUR PARTNERS AND OTHERS WHO HAVE COME TO RELY ON THE SYSTEM.

THE DEPARTMENT OF STATE STRONGLY SUPPORTS THE COSPAS-SARSAT SYSTEM AND CONSIDERS THAT IT IS HIGHLY DESIRABLE THAT THE SYSTEM CONTINUE AND THAT THE INTERNATIONAL ARRANGEMENTS ASSOCIATED WITH THE SYSTEM BE STRENGTHENED. LEAVING ASIDE THE TECHNICAL MERITS OF THE SYSTEM ABOUT WHICH OTHER AGENCIES CAN MORE APPROPRIATELY COMMENT, THE DEPARTMENT OF STATE CONSIDERS THAT THE UNITED STATES OBTAINS POSITIVE BENEFITS FROM THIS PROGRAM.

THE MOST IMPORTANT CONTRIBUTION OF THE PROGRAM IS THE SAVING OF LIVES, REPORTEDLY MORE THAN 250 TO DATE, WITH THE MAJORITY HAVING BEEN RESCUED UTILIZING SOVIET SATELLITES. A SUBSIDIARY, BUT NOT INSIGNIFICANT, BENEFIT IN TERMS OF U.S. FOREIGN POLICY OBJECTIVES IS THAT THE PROGRAM HAS LED TO FRUITFUL INTERNATIONAL COOPERATION IN THE SPACE AREA. WE ATTACH IMPORTANCE TO THIS COOPERATION AND WISH TO SEE IT CONTINUE AND, WE HOPE, EXPAND.

BECAUSE OF THE UNEXPECTED FAILURE OF NOAA 8, THE BASIS ON WHICH THE INTERNATIONAL MOU WAS NEGOTIATED HAS NOW BEEN PUT IN DOUBT. WE UNDERSTAND THAT THE IMMEDIATE ISSUE IS WHETHER TO SEEK TO POSTPONE SIGNATURE OF THE AGREEMENT WHILE THE COMPETANT UNITED STATES AGENCIES CONSIDER HOW BEST TO MAINTAIN AN ADEQUATE SYSTEM CONSISTENT WITH OVERALL US BUDGETARY AND OTHER POLICIES.

AT THE CURRENT TIME, WE DO NOT FORESEE ANY ADVERSE IMPACT ON THE FOREIGN POLICY INTERESTS OF THE UNITED STATES AS A RESULT OF THE INTERNAL USG REVIEW. WE THINK THAT THE BUDGETARY CONCERNS WHICH HAVE ARISEN SHOULD BE IRONED-OUT INTERNALLY BEFORE THE AGREEMENT IS CONCLUDED; IT WOULD BE INAPPROPRIATE TO DO OTHERWISE. THOSE CONCERNS INVOLVE A NUMBER OF DOMESTIC POLICY ISSUES RELATING TO THE PURCHASE OF WEATHER SATELLITES AND THEIR USE BY THE FEDERAL GOVERNMENT WHICH ARE RELATED TO THE PRECISE U.S. CONTRIBUTION TO THE FUTURE COSPAS-SARSAT

PROGRAM; ISSUES WHICH ARE NOT WITHIN THE DEPARTMENT OF STATE'S PURVIEW. WE ARE CONFIDENT THAT THE DISCUSSIONS AMONG THE INTERESTED AGENCIES WILL PRODUCE A SOLUTION TO THE PROBLEM AND WE ARE MONITORING THOSE DISCUSSIONS CLOSELY. IF IT BECOMES NECESSARY TO MAKE ADJUSTMENTS IN, OR TO PROVIDE ALTERNATIVES FOR, U.S. CONTRIBUTIONS TO THE PROGRAM, IT WOULD BE BETTER FROM THE POINT OF VIEW OF OUR FOREIGN RELATIONS TO DISCUSS THE OPTIONS OPENLY WITH OUR FOREIGN PARTNERS PRIOR TO SIGNATURE. WE BELIEVE SUCH QUESTIONS CAN BE RESOLVED WITHOUT AN ADVERSE IMPACT ON OUR FOREIGN POLICY.

DRAFTED: OES/SAT:WLOWELL/OESKIN:BJF
9/17/84:632-2435:#5430S

CLEARANCE:

OES/S - MR. HORNER
OES - MS. YAGER
EUR/SOV - MR. ZIMMERMAN
T - MR. SALMON
H - MR. KELLY
EB/TD - MR. GILSENAN

Mr. SCHEUER. Congressman Tom Lewis of Florida.

Mr. LEWIS. Mr. Chairman, I just want to say, I think it takes a lot of grit to come in and support a program that the OMB said they didn't particularly care for. And particularly now, they jumped on another horse.

I think it takes courage, and I appreciate you doing that, and I recognize I am biased in this particular area, in needing this, but Colonel, what you said is very important as well.

Looking at the humanitarian side of this thing, we certainly recognize the hazards that we place anyone under when they go out on a search-and-rescue mission, and flying in weather they shouldn't be flying in, in order to help their fellow man.

And I think it is very important that you carry the message back that Congress has continued to fund this program and is going to, and I believe what the chairman said earlier about the other areas of the weather satellite, the polar orbiter and things of that nature, we shouldn't be looking at a single SARSAT, but a multiple spacecraft to do a number of things from the economic viewpoint.

So, I disagree with looking at down the road a special SARSAT, and we can continue the polar orbiters, and we are. We are going to keep our commitment with putting one up in November and another one in late 1985, which gives us the two.

And we have to make sure that we draw the plan up properly and the priorities in such a manner that we are going to be able to maintain the two, and not get ourselves in a position that one goes out and we don't have anything for 1 year or 2 years.

Thank you, Mr. Chairman.

Mr. SCHEUER. Mr. Eskin, you state in your testimony you did not foresee any adverse impact on the foreign policy interests of the United States as a result of the internal U.S. Government review, and public announcements that we were thinking of reneging on the two polar-orbiting satellite system that is fundamental to this thing.

Doesn't it occur to you, among our allies who are cooperating with us in this extraordinarily successful venture, as well as among the 120 developing nations who urgently need the continuity of weather information of all kinds that they depend on for planting, reaping, sowing, irrigating, fertilizing, that they would feel that we are perhaps an unreliable and pusillanimous and faint-hearted ally who lacks seriousness of purpose, stout-heartedness that they would look to?

Doesn't that famous Pravda editorial of July give you pause, and isn't that a very good reason why the administration has changed its mind, and now is going to sign up on the dotted line in Leningrad?

Mr. ESKIN. As to the last point, Mr. Chairman——

Mr. SCHEUER. Speak right into the mike.

Mr. ESKIN. I can't speculate. As to the last point, the speculation is what may have led OMB into taking the position it apparently has done.

The factors you elaborated in your statement are of concern to the State Department, and we have considered these and obviously, we must indeed be a reliable partner to our allies and be predictable in our international commitments and obligations.

We take that very seriously, indeed. We felt, because of an unforeseen catastrophic event with no aid conditions on which the agreement had been premised, it may have been changed, and we needed the technical agencies with OMB, we had to consider what alternatives there were.

Mr. **Scheuer**. What is the unforeseen?

Mr. **Eskin**. The fact we lost one of the SARSAT capabilities that we had counted on.

Mr. **Scheuer**. That is a perfectly dramatic and glaring example of what happens when you don't have a bipolar satellite system. That is a classic example of the risk and the jeopardy that all of these weather services, the whole host of them, would be in, if we do to just this dedicated satellite and don't continue the bipolar satellite.

What could give you a better and more dramatic example of the critical foreign policy issues at stake here, in terms of dramatizing the dependence of our allies who are cooperating in this system upon the bipolar facility, as well as the 120 nations in the developing world who urgency depend on that weather information, the continuity of which also depends on a bipolar system?

The gods in heaven gave you an example of the kinds of catastrophe you would be making yourself vulnerable to if you didn't go ahead with a bipolar system. This was celestial handwriting on the wall.

Mr. **Eskin**. We take celestial handwriting very seriously. We take very seriously the foreign implications of the failure to meet our obligations or in more general—the humanitarian activities we are able to carry out and provide to the world through our technological expertise.

If it had been necessary to postpone for a short period, we did not think that in and of itself would lead to any major foreign policy setbacks or catastrophe, and we did not want——

Mr. **Scheuer**. Can you imagine the roman holiday that the editors of Pravda would have had?

Mr. **Eskin**. Yes, sir, I am familiar with it.

Mr. **Scheuer**. The head and shoulders of a bladder, they were the humanitarians and we were the crude, moneygrubbers who were giving up this life-saving system to save a capitalistic buck. I mean, do we really have to play their game, and give them this incredible foreign policy victory, this propaganda victory?

Mr. **Eskin**. I have no doubt you are right, Mr. Chairman. They would have characterized our actions in very much those terms and made every effort to get a propaganda advantage from it.

I am not sure I would go so far as to say there would be a foreign policy victory for them. I think we would have had to look for alternatives to meet our obligation and to keep the system going.

We certainly, in the State Department, expected that the system would continue, and if we are able to do that, we will be able to ride out whatever propaganda campaign the Soviets want to mount.

We don't want to give them a free opportunity to do so. I hope through what we have heard this morning, we can avoid that.

Mr. **Scheuer**. Well, I hope so, too, and I am absolutely pleased and delighted that this decision was changed. Were you informed of the change in the OMB decision that was made, apparently in the last 18 to 24 hours?

Mr. Eskin. We were informed informally late yesterday that OMB had modified its position in regard to signature of the agreement.

The specific details, I only heard from Mr. Bailey.

Mr. Scheuer. Had you been urging OMB to change their decision?

Mr. Eskin. We had not made any direct approach to OMB on the decision, the State Department, no, sir.

Mr. Scheuer. Had you clarified for the OMB the serious foreign policy risks and the benefits to the Soviet propaganda machine that we would be providing them, if we waffled on this matter, even temporarily?

Mr. Eskin. We have been in close touch with OMB over the last 2 weeks, ever since it became evident to us that there was a serious problem, and we became aware of the Stockman letter.

I am certain that OMB was aware of what the implications, foreign policy and domestic, and humanitarian implications were of their action.

Mr. Scheuer. We appreciate your testimony very much, Mr. Eskin. You have made it clear this is an important policy issue. We have been saying that for months up here, and we are glad that you feel that way, and we are glad that you have made that point in the discussions.

And that issue may have been the compelling one in this extremely welcome change of heart that has taken place at OMB, and without anybody taking any credit, let's just say that the system has worked, and I am proud of the bipartisan support in both the House and the Senate for the integrity of a bipolar system, the repeated signals that we have sent.

And I am very happy that the administration responded as it did, and there is going to be no preening or no crowing down here.

We are grateful. We are all colleagues in the same governmental process, when people think of the American Government, our citizens, Soviet citizens, British citizens, they don't always discriminate between the Congress and the executive branch, they just think of Government.

This Government came out right on this decision, and we think the process helped, worked, and we think your inputs from the State Department obviously played a role, and we are very delighted and very pleased at this quantum jump in seriousness and in U.S. credibility, and common sense, and good judgment.

And we look forward, Mr. Bailey, to inviting you back again. We very much appreciate your forthcoming and helpful attitude this morning, and we know you feel that there is a certain absence of clear definition of what the savings are between the bipolar system and the dedicated system.

And we would ask you to go back and have everybody sharpen their pencils over here and achieve the same kind of consensus through discussion, through friendly, cooperative spirit on this matter that we achieved on the decision to go ahead and sign up in good faith on October 5 in Leningrad.

Truly, this is a wonderful morning. I am very happy you all came, and I am grateful to all of you for your splendid testimony.

Thank you very much.

We will now hear panel No. 4, Dr. Raymond L. Garthoff, senior fellow and United States-Soviet relations expert, Brookings Institution in Washington, DC. Dr. Garthoff, we are happy to have you here. We are running terribly late.

As you are aware, we had this deo ex machina reach down and bring us happy tidings that pleased us beyond belief. We are sorry we took a little bit more time than we normally would have with the previous panel.

Your full statement will be printed at this point in the record. Please take 5, or 6, or 7 minutes, as you need, to sum up your testimony, perhaps to advert to any of the remarkable happenings you have observed before you joined the witness table. Then I am sure we will have some questions for you.

STATEMENT OF RAYMOND L. GARTHOFF, SENIOR FELLOW AND UNITED STATES-SOVIET RELATIONS EXPERT

Mr. Garthoff. Thank you, Mr. Chairman.

I am happy to be here. I join you in being very pleased at the apparent outcome of having the issue considered at this time.

I can be very brief, I think, in the comments I would like to make. You have already very eloquently pointed to the problem that would be involved, we have just skirted, by the situation in which the United States would default on the course of action which it had undertaken, or which is clearly in the interest of the United States, as well as other countries, and as well as serving to assist in an area of international cooperation with the Soviet Union at a time when such joint activities are very few indeed.

The major problem, Mr. Chairman, that I think could be faced, and I trust now will not be, as you have suggested, is something which would put into question the credibility of American consistency, reliability as a negotiating partner. Apart from reducing or affecting adversely a fruitful area of existing cooperation—a repudiation of this position by a position that the United States would have been or would be, I think, extremely unfortunate from a broad range of foreign policy considerations.

I think that a repudiation of the position we have taken in negotiations, either by nonsignature of the agreement at the very close of these negotiations or by a nonfulfillment of our obligations, would raise serious questions in the minds of the Soviet leaders, and of our allies, and many others in the world.

We must, I think, avoid any temptation to rely upon such a word as "equivalent" to later attempt to get by with a system which is not really equivalent. I think in that case it would be better not to sign than to leave a misimpression which we did not later meet.

I am not suggesting that that will happen. In fact, what I would like to do is to reinforce the clear statements which you and other members of the committee have already made on this point, and which I am sure the representatives of the executive branch will take into account.

I think that apart from the general point, which should be fairly obvious, that if the United States does not follow through on a course that it has already committed itself to, and which is clearly to our advantage, this raises general questions as to the credibility of our commitments and reliability in negotiations.

I would like to just emphasize, going beyond that general point, the particular impact that this would have on the thinking of the Soviet leadership. It is not a question of being tender as to whether we offend the Soviet leaders by any actions that we undertake. It is a question of retaining such minimum degree ofacceptance that there are areas in which even adversaries, such as the Soviet Union and the United States, can and do find where some degree of cooperation to be in their mutual interest.

If we were to fail to follow through on an agreement to cooperate in such a clear-cut case of mutual advantage, of humanitarian service, of international cooperation, it would undercut the declared position of the United States in general to favor cooperative activities to mutual advantage. I think this could adversely prejudice Soviet receptivity to proposals of this or any administration at a time when relations are already badly strained.

I think this is not a partisan issue. It is a question of America's credibility.

Thank you, Mr. Chairman.

[The prepared statement of Raymond L. Garthoff follows:]

SUMMARY OF TESTIMONY BY THE HONORABLE RAYMOND L. GARTHOFF, SENIOR FELLOW, BROOKINGS INSTITUTION

American withdrawal or severe curtailment of participation from the program in the SARSAT-COSPAS agreement would have a number of adverse consequences for American foreign policy. Apart from reducing or ending a fruitful area of existing cooperation that has demonstrated practical advantages for the United States, such a repudiation of the position that the United States has taken in negotiations would raise serious questions in the minds of the Soviet leaders (and of many others in the world) in the reliability and consistency of the United States as a negotiating partner—a reputation we have already placed in question by non-ratification of a number of signed international agreements including several arms control treaties with the Soviet Union.

In addition to effects of the Soviet leaders, such action by the United States would suggest unreliability to our Allies and other countries. Moreover, the Soviet Union would undoubtedly take advantage of the opportunity to launch propaganda criticism, contrasting American unreadiness to spend relatively modest sums on peaceful cooperation in space, while devoting very large sums to major new weapons programs in space. Whatever the merits of those programs, it is not in American interest to provide the foundation for such comparisons.

Of greatest importance, however, is the impact on the thinking of the Soviet leadership. If the United States were unwilling to follow through on an agreement to cooperate in such a clear-cut case of mutual advantage, it would undercut the declared position of the United States to support such activities. This could adversely prejudice Soviet receptivity to proposals of this or any administration at a time when relations are already badly strained. This is not a partisan issue; it is a question of America's credibility.

Mr. SCHEUER. Thank you very much, Dr. Garthoff.

Mr. Lewis.

Mr. LEWIS. I was interested, Doctor, in your comments about the equivalency and whether or not—do you think in any way that by the testimony that has been presented here today, and the way that it was expressed as to putting—having two SARSAT orbiters, that in any way we are violating the agreement we would be signing or giving that impression?

Mr. **Garthoff**. The testimony raised a question in my mind as to whether some of the alternatives that have apparently—or that are still being—considered would fully meet the—and be equivalent to the two polar satellite systems. And I think it is important—I am not in a position to say, I don't know enough about the possibilities as to whether there is any alternative that would really be equivalent. But I do think that as a matter of principle, it is extremely important that if there is any change from the precise system with two SARSAT orbiting, polar-orbiting satellites that it be truly equivalent. And I don't think a case has yet been made that there is an adequate equivalent in other dedicated satellites.

Mr. **Lewis**. But you are satisfied that with the testimony, and what we are going to be doing in November and the latter part of calendar year 1985 by having two polar orbiters with the SARSAT involved, that this will meet the requirements of the agreement?

Mr. **Garthoff**. I am——

Mr. **Lewis**. We are not in a position to put up a SARSAT polar orbiter independent of anything else. And that, to me, would be scientifically foolish. I believe we want to, as the chairman brought out, add the others to it—the weather satellite, whatever else we can use it for.

Mr. **Garthoff**. That certainly seems——

Mr. **Lewis**. But that is not equivalent. That allows the SARSAT, as well as everything else, to go up at the same time and do the job.

Mr. **Garthoff**. Yes, yes; as I understand it, that does not concern me. It was not clear to me that the statement presented on behalf of—presenting the OMB position, was one which made clear that it would provide equivalent capability.

Mr. **Lewis**. I don't think we have that problem.

Mr. **Garthoff**. I certainly don't want to suggest that there necessarily is a problem. I am not an expert in the working of these particular systems. But as that statement was read, it frankly did not seem to me to be clear—it was not clear to me, let me put it that way, that this would provide adequate equivalence.

But I know—I not only do not know more than you do about this, but I am sure less. This is only a question of my reaction to that particular statement that was made in the testimony.

Mr. **Lewis**. I am concerned about that, because if you think that way, then maybe other people are thinking that way too, maybe the people we are going to be dealing with. I don't want them to think that way.

Mr. **Garthoff**. I assume there will be opportunity, there will be further clarification of the position that will be taken before and at the time of signature of the agreement. I would certainly hope that any question that is left in the minds of others, as well as myself, would be answered in the course of further clarification of the position.

Mr. **Lewis**. I think the doctor makes a good point.

Mr. **Scheuer**. Excellent point.

Mr. **Lewis**. Thank you, Doctor.

Mr. SCHEUER. Well, Dr. Garthoff, you have made some excellent points. We totally agree with you, as is perfectly clear from our questions. We thank you very much for coming. We apologize for the lateness of the hour. Your testimony was very helpful and productive. We are grateful to you.

We will now move ahead with the last panel. John Sheehan, vice president of aviation policy of the Aircraft Owners and Pilots Association, and Bill Adams, president of the Radio Technical Commission for Maritime Services, both of Washington, DC.

We are delighted to welcome you both here today. Both of your statements will be printed in full at this point in the record. If you would each take 5 or 6 minutes and sum up your testimony, and refer to anything you have heard today that interests you or that caught your imagination, caught your attention, after that I am sure we will have some questions for you.

Why don't we take you first, Mr. Sheehan?

STATEMENTS OF JOHN SHEEHAN, VICE PRESIDENT OF AVIATION POLICY, AIRCRAFT OWNERS & PILOTS ASSOCIATION; AND BILL ADAMS, PRESIDENT, RADIO TECHNICAL COMMISSION FOR MARITIME SERVICES

Mr. SHEEHAN. Thank you, Mr. Chairman.

Just for the record, AOPA is a membership organization that has over 265,000 aircraft pilots and owners in it. Our members fly more than three-quarters of the some 210,000 general aviation aircraft in the United States today.

Just to give you an idea of scale, our members fly more passengers, more intercity passengers, than do the 25 major trunk airlines in the United States each year. Additionally, we have an international interest. AOPA is a member of the International Council of Aircraft Owners and Pilots Association, which has 28 other nations as members of AOPA. Obviously, our members take a great interest in search and rescue and safety of their craft.

Our organization has been in operation for more than 45 years now, and we have been instrumental in a number of achievements in search and rescue. Probably our most noticeable one was encouraging the formation of the Civil Air Patrol. We continue this interest today. We are a regular participant in the U.S. Interagency Committee on Search and Rescue.

The emergency locaters transmitter has been a requirement for U.S. civil aircraft for over 10 years now. During that time, many lives have been saved because of it. The concept of a search and rescue satellite, though, has proved to be even more efficient in saving lives and helping our members.

As we have heard this morning, almost 300 people have been saved in the few years of operation of either a single or a dual search and rescue satellite.

Now, while one or two search and rescue satellites have proved useful, it has become evident that more satellites will improve the probability of detection of an emergency locator transmitter. But more importantly, they will significantly reduce the time to verify and pinpoint a valid event, therefore, accelerating the rescue phase of a SAR action.

The proposed system of four satellites incorporating new technology and refined procedures should greatly enhance the probability of rescue for people of all nations. Therefore, we urge the Congress to authorize the two plan, U.S. SARSAT. We further urge the executive branch to fully cooperate with any and all nations participating in this truly universal humanitarian venture.

The United States has long been a leader in aviation and space ventures. It would be ironic if we could not fully participate in this program affecting not only aviation, but maritime and space interests, especially when considering the potential benefits to mankind.

Thank you for the opportunity to make these comments, Mr. Chairman.

[The prepared statement of Mr. Sheehan follows:]

AIRCRAFT OWNERS AND PILOTS ASSOCIATION
421 Aviation Way, Frederick, MD 21701 / TEL: (301) 695-2000 / TELEX 89-3445

STATEMENT OF JOHN J. SHEEHAN

AIRCRAFT OWNERS AND PILOTS ASSOCIATION

HEARING ON RENEWAL OF U.S. - U.S.S.R. SEARCH AND RESCUE SATELLITE ACCORD

HOUSE SCIENCE AND TECHNOLOGY COMMITTEE

NATURAL RESOURCES, AGRICULTURE RESEARCH AND THE ENVIRONMENT SUBCOMMITTEE

HONORABLE JAMES H. SCHEUER, CHAIRMAN

SEPTEMBER 18, 1984

Mr. Chairman, the Aircraft Owners and Pilots Association (AOPA) is a membership organization comprised of more than 265,000 pilots and aircraft owners throughout the United States. Our members own or operate more than three-quarters of the nation's 210,000 aircraft. On an average day, our members will fly more people in inter-city commerce than most of our airlines--to the extent that our total number of passengers will exceed the combined total of more than 25 of the U.S. trunk carriers.

In addition, AOPA is united with similar associations in 28 other nations in the International Aircraft Owner and Pilot Associations (IAOPA). IAOPA represents the world's general aviation interests in the International Civil Aviation Organization, the branch of the United Nations responsible for determining international aviation policy.

Our members, obviously, have a vital stake in the decisions that are now being made with regard to the increasingly obvious role of satellite technology in transportation. While we have also sought the human training and the aeronautical hardware to prevent the need for search and rescue activities, we recognize full well that as long as people fly there will be accidents, and the need for prompt and effective search and rescue.

Search and rescue has naturally been a focus of AOPA since its founding 45 years ago. We have been instrumental in conceiving and encouraging many advancements in aviation search and rescue techniques. For example, the Civil Air Patrol was founded at AOPA's urging and most of the current Civil Air Patrol personnel are AOPA members.

The emergency locator transmitter (ELT) installed in virtually all U.S. general aviation aircraft has saved many lives in the past ten years. Location of an activated ELT depends upon having a receiver with direction-finding capability within line of sight of the device, however. Since the crash site often lies within rugged terrain, affording limited line-of-sight, detection is often difficult. The greatest problem of a search lies in the fact that an aircraft may not be reported missing until it does not arrive at its planned destination. This often requires days to determine. Only then, can search aircraft be launched. This uses up valuable time that is so crucial in the early hours after an accident. Satellites offer rapid detection and location of downed aircraft, thereby, increasing the probability of surviving an accident.

The concept of a search and rescue satellite has been well-proved through more than 200 lives saved over the past seven years. This has been accomplished under less than ideal conditions in terms of technology, procedures and coordination.

While one or two search and rescue (SAR) satellites have proved useful, it has become evident that more satellites will improve the probability of detection of an ELT, but more importantly they will significantly reduce the time to verify and pinpoint a valid event, therefore, accelerating the rescue phase of a SAR action.

The proposed system of four satellites incorporating new technology and refined procedures should greatly enhance the probability of rescue for people of all nations. Therefore, we urge the Congress to authorize the two planned U.S. SARSATS. We further urge the Executive Branch to fully cooperate with any and all nations participating in this truly universal humanitarian venture.

The United States has long been a leader in aviation and space ventures. It would be ironic if we could not fully participate in this program affecting aviation, maritime and space interests, especially, when considering the potential benefits to mankind.

Thank you for the opportunity to express our views on this subject.

Mr. SCHEUER. Thank you. Mr. Adams.

Mr. ADAMS. Thank you, Mr. Chairman.

For the record, sir, the Radio Technical Commission for Marine Services, more commonly referred to as RTCM, is a nonprofit cooperation of some 160 non-Government and Government organizations. International Association members comprise about 10 percent of the total membership. Within this membership, a wide range of interests is represented, including equipment manufacturers, sales and service dealers, common carrier and other service providers, labor unions, educational institutions, trade associations and users ranging from the smallest recreational craft to the largest oceangoing ships.

Within RTCM, these units work together cooperatively to improve the effectiveness of the maritime telecommunications. Much of the work accomplished by RTCM, as evidenced by its reports and recommendations, has dealt with improvement of maritime safety through application of modern telecommunications technology. And many of the RTCM recommendations have, in fact, been the basis for national regulatory reactions or for national positions in various international meetings dealing with maritime safety.

It is certainly our experience that despite the improvements that have come about in recent years in maritime telecommunications equipment, both the equipment and the procedures available for distress situations on the sea, can only be considered grossly inadequate when viewed in the light of available technology today.

Explosions, fires, structural failures, and severe storms still result in loss of both large and small ships. And you certainly heard graphic examples of that in the testimony in the first panel this morning, sir.

Ships still disappear without a trace—there are those who did not survive and were never located. And even when a call for help is received, far too often the final conclusion is a simple "No survivors."

In short, there is an urgent need for the mariner at sea to have a simple and inexpensive device that will permit him both to call for help with some assurance that his call is heard and to give some indication of the location of his position.

Of perhaps even greater importance, the device must be of such a size and shape that it can be taken into a survival craft or that it can float with the survivor to give a continuing indication of his presence if he is in the water.

The COSPAS-SARSAT System has, in fact, already demonstrated this capability, as was so amply indicated by the various records of saves that were passed this morning. There is simply no other system that will provide the same worldwide coverage for distress alerting as well as location information.

And I think you made a very good point earlier, Mr. Chairman—the benefits of the COSPAS-SARSAT System to the maritime community simply cannot be calculated in dollars because they will be accrued in the lives of those saved from the sea and despite various efforts and various studies that I have seen, no one has yet been successful in placing a dollar sign on the value of human life.

We heard some excellent testimony on the potential impact of a moveback, a stepback from our current COSPAS-SARSAT Program.

Without taking too much time, Mr. Chairman, I would like to take these broad comments and move them down, if you will, just a little into the particular area of the world maritime community.

Our country enjoys great respect throughout the world maritime community for our humanitarian leadership in promoting improved maritime safety. COSPAS-SARSAT is viewed overseas as another example of our Nation's great concern for safety of life. It is as a result of programs such as these that when our delegates walk into an international meeting, great weight is given to their views dealing with maritime safety matters. Any shift back from the proposed program must inevitably degrade that image and dim the luster of our views.

One point was not mentioned this morning, which I think is probably a significant part of this foreign policy, and of the propaganda question to which you alluded, Mr. Chairman. If you think back a year or so ago, as a humanitarian act following the Korean Airline incident, the United States made public commitment to worldwide availability of the navigational signals of the future global positioning system. Great stress was placed on the value of this system to provide navigational capabilities and improve the safety of life for both aeronautical and maritime services.

Certainly, backing away from the COSPAS-SARSAT Program must be viewed as completely inconsistent with the position taken already by our Government on future availability of the global positioning system.

If the United States were, in fact, to back away from the commitment to provide two satellites for the program, certainly the ultimate configuration of the system can only be the subject of speculation at this time. It appears, however, regardless of the exact configuration, the end result is bound to be fewer satellites in orbit, and the impact of that situation is simply fewer satellites equals greater response delays, equals more life lost at sea.

In summary, Mr. Chairman, in consideration of the urgent need for improvements in the existing maritime distress system, in support of the leadership role, the United States has taken for improved maritime safety in the world community, and the reputation our Nation has achieved for its cooperative approach to humanitarian programs, I would hope the U.S. Government would move forward with a firm commitment to a four-satellite COSPAS-SARSAT Program with two satellites provided by the United States and two by the Soviet Union.

I am encouraged by the comments today that would appear to indicate that in fact will happen.

Thank you, sir.

[The prepared statement of Mr. Adams follows:]

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STATEMENT OF

William T. Adams, President
Radio Technical Commission for Maritime Services

BEFORE THE

Subcommittee on Natural Resources, Agricultural
Research and Environment of the
Committee on Science and Technology
U.S. House of Representatives

CONCERNING

The COSPAS-SARSAT Program

I am William T. Adams, President of the Radio Technical Commission for Maritime Services, more often referred to in the maritime community simply as "RTCM."

RTCM is a nonprofit corporation of some 160 non-government and government organizations. International Associate Members comprise about 10% of the total membership. Within the membership a wide range of interests is represented including equipment manufacturers, sales and service dealers, common carrier and other service providers, labor unions, educational institutions, trade associations, and users ranging from recreational boat owners to ocean-going shipping.

Within RTCM, these interests work together cooperatively to improve the effectiveness of maritime telecommunications. As an organization, RTCM serves as a focal point in the maritime community for the exchange of information, establishment of standards, and development of new methods, rules and procedures which are the subject of RTCM reports and recommendations.

Much of the work accomplished by RTCM, as evidenced by its reports and recommendations, has dealt with improvement of maritime safety through application of modern telecommunications technology. Many of the RTCM recommendations have been the basis, in fact, for national regulatory actions or for national positions in various international meetings dealing with maritime safety.

Since the advent of radio, and particularly since World War II, there have been substantial improvements in equipment and procedures employed by those in distress on the sea. Despite the improvements that have been made, however, present maritime telecommunications equipment and procedures for distress can only be considered grossly inadequate when viewed in the light of today's technology. Explosions, fires, major structural failures and severe storms still result in loss of both large and small ships. Ships still disappear without a trace; and even when a call for help is received, far too often the final conclusion is "no survivors."

I speak to you today as one who has personally participated in planning and conducting searches at sea. I know the heartbreak of the days of search finally concluded with no trace of a missing ship. And I know the even greater heartbreak of recovering the bodies of those who abandoned their ship with survival flotation, but were not able to survive in the sea or on their lifeboat or life raft until they were finally located by rescue forces.

There is an urgent need for the mariner at sea to have a simple and inexpensive device that will permit him to initiate a call for help and provide information as to his location. Further, the device must be capable of being taken into survival craft or of floating with survivors in the water in order to provide a continuing indication of actual survivor location.

The COSPAS-SARSAT System has already demonstrated this capability. It has proven the ability of the system to save lives and there is every reason to believe that with further refinement its effectiveness will be substantially increased. There is no other system that will provide worldwide coverage for distress alerting as well as location information for the ship in distress and/or the survivors. The benefits of the COSPAS-SARSAT System to the maritime community cannot be calculated in dollars because they will be accrued in the lives of those saved from the sea, and no one has yet been successful in placing a simple dollar sign on the value of a human life.

A question has been raised as to the potential impact of a reduction in U.S. participation in the COSPAS-SARSAT program. In my view, there are many ramifications to such an action. In brief:

- The United States enjoys great respect throughout the world maritime community for our nation's humanitarian leadership in promoting improved maritime safety. The sea rescue forces and the supporting maritime telecommunications network maintained by the United States government is unsurpassed in the world today. The COSPAS-SARSAT program is viewed overseas as another example of our nation's concern with safety of life. As a result of programs such as these, great weight is given to United States views in international meetings dealing with maritime safety matters. A shift back from the proposed COSPAS-SARSAT program must inevitably degrade that image and dim the lustre of our views in a number of international fora.

- As a participant and as a leader of United States delegations to numerous international meetings dealing with maritime telecommunications, I have been impressed by the cooperation between East and West in the matter of civil maritime safety. The meetings have dealt largely with the operational, technical and economic aspects of maritime telecommunications, and political rhetoric has been almost non-existent. In this vein, the COSPAS-SARSAT program is an outstanding example of East/West cooperation with substantial contributions not only from the United States and the Soviet Union, but also from a continually growing list of other nations. It would seem that extremely careful consideration should be given before backing away from an internationally accepted cooperative East/West high technology program that will provide significant benefits to the entire world community if properly implemented.

- As a humanitarian act following the Korean airliner incident, the United States made public commitment to worldwide availability of the navigational signals of the future Global Position System. A backing away from the COSPAS-SARSAT program must be viewed as completely inconsistent with the position taken on availability of the Global Positioning System.

- If the United States were, in fact, to back away from its commitment to provide two satellites for the COSPAS-SARSAT program, the ultimate configuration of the system can only be the subject of speculation at this time. It appears likely, however, that the end result would be fewer satellites in orbit. The impact of that situation is simply stated. Fewer satellites equals greater response delays resulting in more lives lost at sea.

In consideration of the urgent need for improvements in the existing maritime distress system, the leadership role the United States has taken for improved maritime safety in the world community, and the reputation our nation has achieved for its cooperative approach to humanitarian programs, I would hope that the U.S. government would move forward with a firm commitment to a four satellite COSPAS-SARSAT Program with two satellites provided by the United States and two by the Soviet Union.

Mr. **Scheuer**. Thank you very much, Mr. Adams.

I am not sure that we can rest on our laurels or be confident that will happen without some further followup. We can be confident that we are not publicly going to renege on the agreement we have negotiated. We are going to go ahead and sign that, and presumably sign it in good faith.

The question is not do we shortchange the Russians, because we are going to provide that satellite capability or its equivalent, and I agree we have to be careful of what that phrase means. The question is, are we going to shortchange ourselves and miss all the other benefits from that second polar orbiting satellite?

We will have a future hearing, as we discussed before, with the very distinguished witness from NOAA, on what the cost savings would be if we eliminate the second orbiting satellite and simply provide the equivalent and what services we would be giving up and, as a matter of common sense and decency, is it worth it?

Congressman Lewis.

Mr. **Lewis**. Thank you, Mr. Chairman.

Mr. Adams, do you see anything down the pike where it would become mandatory for seagoing vessels or offshore vessels to have locater transmitters, ELT's, EPIRB's, such as we do in aircraft, since January 1, 1974?

Mr. **Adams**. There are, in fact, mandatory requirements for the larger seagoing ships now to carry what is essentially the same type of device as is carried in the aircraft as AELT. It is, of course, somewhat different. But basically we are talking about a device that operates in the same manner. And that is required at the present time on the larger seagoing ships.

There is further, in the international scene, an ongoing program within the international maritime organization developing a new concept, if you will, for the future entitled "The Future Global Maritime Distress and Safety System." This is a major step forward in looking at appropriate and proper technological applications to improve the existing systems and a part of the future global maritime distress and safety system looks toward the use of EPIRB's working through satellites.

There is yet to be determined exact types of EPIRB's. But a satellite-based EPIRB is clearly going to be a mandatory requirement on seagoing ships at some time in the future.

Mr. **Scheuer**. How about aircraft?

Mr. **Adams**. I would defer to the gentleman on my right on that, sir.

Mr. **Sheehan**. Aircraft now have a mandatory requirement for ELT, all general aviation aircraft. And that will continue into the foreseeable future. In fact, we have a new generation of ELT's that will be tested later this year in conjunction with NASA and NOAA that should significantly improve the capability of the ELT and reduce the false alarm rate we have experienced in the past. It will further enhance the system.

Mr. **Scheuer**. Thank you.

Mr. **Lewis**. For either one of you gentlemen, are there any alternative distress systems to SARSAT at this time, and if so, are they feasible, and how effective are they compared to SARSAT?

Mr. SHEEHAN. I know of no alternative systems that give the same—anywhere near the same benefits.

Mr. LEWIS. How about you, Mr. Adams?

Mr. ADAMS. I would support that, sir. The capability of a reasonable type of alerting combined with an indication of position location is simply not available from any other system.

Mr. LEWIS. This question probably should have been asked of the panel of five, but do you agree it is feasible for private sector to have a system such as this for aircraft and for sealanes?

Mr. SHEEHAN. You mean to have satellites to do this?

Mr. LEWIS. Have a satellite system specifically targeted just for SARSAT operations.

Mr. SHEEHAN. Not at this moment. There is some encouraging and innovative satellite systems, commercial satellite systems, that will be coming to us in the last decade of this century—Geostar, by name, not only will provide communications and navigation services. It will also provide a form of search and rescue capability through a very simple and inexpensive transponder.

So not right now, but maybe in another 15 years there could be a commercially available system that would provide this function.

Mr. LEWIS. Would you like to comment, Mr. Adams?

Mr. ADAMS. I think it is conceivable. My own timeframe, and looking at the history of what has happened certainly in the maritime world and in the maritime satellite world in the past, it would be substantially beyond 15 years before that could happen.

And, of course, the other question that comes out of this—there have been a number of innovative suggestions that have come up within the United States for new satellite-based systems, some providing position information, some providing this possible alerting. The question, of course, is whether or not, in fact, it would ever be possible to translate these things into an international operation, which must be of concern to those who are plying ships on the sea.

Mr. LEWIS. Just so I am sure it is in the record, I believe the smaller ELT's for the aircraft run approximately $150 to $300.

Mr. SHEEHAN. That is approximately correct.

Mr. LEWIS. How about the same for small boats and yacht types? What would be the cost of those?

Mr. ADAMS. Depending on the type of equipment, there is an entirely different type of equipment that is currently used on small boats. There are a couple of different types used on deep-sea shipping.

The reason I am leading up to this is, to a great extent, the electronics part of the system is essentialy the same cost when you are talking about a maritime system or an aeronautical system. The things that begin to make some differences in cost really is the packaging. When you get into the float-free type EPIRB on the merchant ship, this begins to push the price up a little because of the packaging. But essentially, the cost figures are important.

Mr. LEWIS. Around $150 to $300 that could take care of the maritime problems, as well?

Mr. ADAMS. As you said, could. You mean in the future device?

Mr. LEWIS. I mean today.

Mr. ADAMS. Today you can certainly get a device of the type that the gentleman brought in this morning in the $300 range. I believe at this point, and I have not priced them recently, I believe you are at least doubling that when you go into the packaging that puts you into a float-free device.

Mr. LEWIS. I see. Thank you, Mr. Chairman.

Mr. SCHEUER. Do either of you feel the need for specific improvements in the workings of the SARSAT System—that comes within the jurisdiction of this committee—either for seacraft or aircraft?

Mr. SHEEHAN. A difficult and complicated question. But let me say this. I think that NOAA, NASA and the Air Force are on the right track, because not only have we had technological constraints in the past. We have also had procedural and coordination problems.

But I think those are being worked out in large degree, in part, thanks to the international agreements that we have had. Immediate improvements——

Mr. SCHEUER. Refinements?

Mr. SHEEHAN. I cannot see any. Of course, there is ongoing work that will improve the capabilities of the entire system through different frequencies, encoding of the signal so you know exactly who it was that went down, which is not possible right now, and several other technological achievements that will be available to us within the next 3 to 5 years that will make the system much better.

So I think within that context, I think we are doing pretty well, we are on the right track.

Mr. SCHEUER. Mr. Adams.

Mr. ADAMS. I agree. I think we are clearly on the right track. I think it is important to note, however, that the remarkable fact to me, at least of this entire operation, has been the simple fact that we have been able to apply this technology into a satellite-based system and, in fact, operate usefully, effectively and rescue people using the older types of becons that were not designed to fit into a system of this type.

The ongoing programs which were just alluded to looking toward a shift in the frequency and some other technical improvements, matched up with the EPIRB or ELT the type devices to specifically operate with the system, I feel, will give substantially greater results, will eliminate what problems there are now in the false alarm area, will pick up signals that were not heard before, and will enhance this system very substantially.

Mr. SCHEUER. Well, thank you very, very much. I especially thank you for your patience for the end of this long, very interesting, but nevertheless long morning of hearings. Your testimony has been very helpful. We are grateful to you.

Thank you very much. The meeting is adjourned.

[Whereupon, at 1:30 p.m., the subcommittee was adjourned subject to the call of the Chair.]

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